

JANUARY 1916 ~ No 121

Issued Every Month

for Free Distribution to Users  
of Machine Tools

HITCHCOCK'S  
**MACHINE  
TOOL LIST**

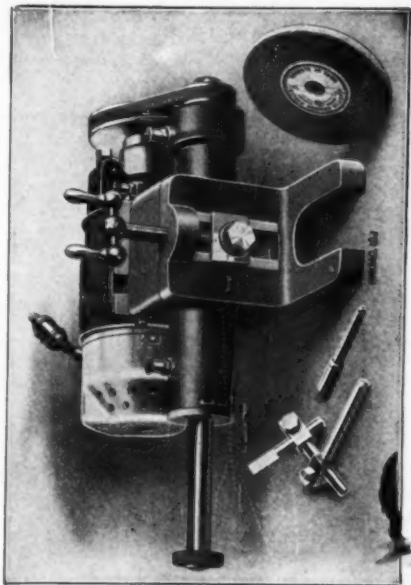
A Reference Book for Buyers  
of Iron Working Machinery

Published by  
**A. H. HITCHCOCK**  
1220-1235 Cordon Building  
Chicago

# The "Hisey" Precision Combination Tool-Post Grinder

For Internal and External Work

For external work the internal extension can be quickly removed. Particularly adapted for accurate tool room and die work.



Most complete line of Hand and Breast Drills, Radial Drills, Sensitive Bench Drills, Aerial Grinders, Buffers, Bench and Pedestal Grinders, Angle-plate and Surface Grinders.

*Write for catalog and deliveries*

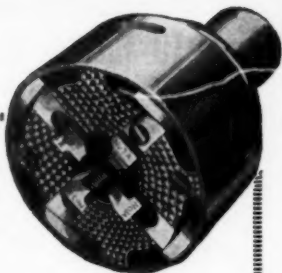
**The Hisey-Wolf Machine Co., Cincinnati, O.**

New York Office, 50 Church Street

# NAMCO

*Self Opening*

## DIES



NAMCO Automatic Dies are built to stand hard usage, stay accurate and wear long.

They have the fewest possible parts, correct materials and precise workmanship.

Chasers are hobbled and kept clean while cutting by a constant flow of cutting lubricant thru the head. There is no face cap to hold the grit.

The result is more and better threads at a lower cost per cut.

*Complete information upon request.  
Ask for the "NAMCO Die Book C."*

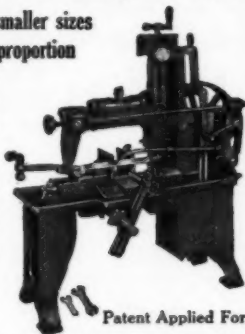
**THE NATIONAL-ACME  
MANUFACTURING CO.**  
**SIXTH CLEVELAND CITY**  
NEW YORK - BOSTON - CHICAGO - DETROIT

## Only 10 Minutes to Cut 6-in. Steel

The Marvel No. 4 cuts smaller sizes  
of cold rolled steel in proportion

Cuts on the draw stroke and lifts free of the cut on the return. A graduated feed wheel gives any desired pressure on the saw blade.

Machine stops automatically when piece is cut off, and can also be set to stop at any desired depth in the cut. It embodies speed, accuracy and expert workmanship. We also make other hack saws, punches and shears.



*Write for Circulars*

Patent Applied For

**Armstrong-Blum Mfg. Co., 341 N. Francisco Ave.  
Chicago, Ill.**

## Saves Time and Material

Cuts Hardened Steel Rods or Bars, Reamers,  
Taps, Copper and Brass Tubing, Aluminum,  
Etc., Quickly, Smoothly and Without Waste

### Peter Bros. Ball Bearing Abrasive Cutter

—is a big economy in the tool room or wherever such material must be cut. Has a rapid, thin, clean cut. Doesn't draw the temper, saves grinding, saves time and much valuable material. Soon pays its own cost.

**8" Size, \$16.50, with C. S.**

Splendid for tool room. Cuts high-speed steel up to  $\frac{3}{4}$ " square.

**12" Size \$42, with C. S.**

Cuts up to  $2\frac{1}{2}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

**15 Days' Free Trial**

Write us or ask your dealer

**PETER BROTHERS MFG. CO.**

115 Railroad St., Algonquin, Ill.







**No. 1—Eats Steel**

## **Why Is It**

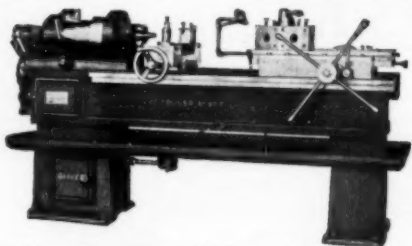
That so many large shops are now equipped and being equipped with

### **The Newly Improved Racine High Speed, Metal-Cutting Machine?**

FOR MANY GOOD REASONS—among others—because for speed, accuracy, economy and ease of operation THE RACINE cannot be surpassed. You MAY NEED ONE NOW. We will send a RACINE on any trial basis that is fair. WRITE US or any good dealer.

**Racine Tool & Machine Co.**

1500 Junction Ave. S., Racine, Wis., U. S. A.



## Early Deliveries on

16-inch Heavy Duty Turret Lathes

16-inch Heavy Duty Engine Lathes

*(We specialize on the one size)*

**Oliver Machinery Co.**

Coldbrook Street,

Grand Rapids, Mich.

## Use Small Lathes for Small Work



### Cut Costs With Dalton 6" Lathes

Although built for small work, they have ample strength to do work often done on lathes 3 or 4 times their size. They have the accuracy required for tool room and precision work.

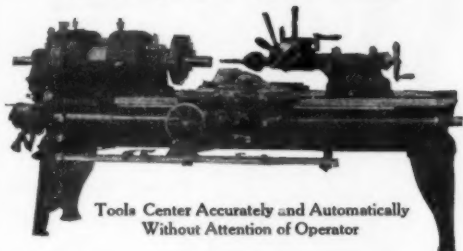
Many plants making small parts in quantities are cutting costs with Daltons.

*Write for Bulletin B-600*

**DALTON MACHINE CO., Inc.,** 1901-15 Park Av. NEW YORK

# **Make Your Lathe Into a Turret**

**And Change It In Fifteen Seconds**



**Tools Center Accurately and Automatically  
Without Attention of Operator**

## **With Newman's Multiple Rotary Turret**

you can drill, counterbore, ream and tap without removing and replacing tools, the change from one tool to another being made instantly. It gives the speed, the convenience and the accuracy of a turret lathe, using a like number of tools, and facilitates production in the same degree.

It is so simple that its operation is apparent at a glance. Its simplicity enables us to make it accurate at small cost, and to deliver it promptly. It is seven inches in diameter, weighs 27 lbs., and holds five tools.

**The Price is \$35, f. o. b. Cincinnati**

**And You Can Try It at Our Risk**

The place to test this is in your own shop, on one of your own lathes. Give exact size of tailstock spindle, to which it is to be attached, and we will send one on thirty days' free trial, to be returned at our expense if not satisfactory.

*Write Now And Get An Early Shipment*

**The Newman Manufacturing Company**

**717 Sycamore St., Cincinnati, Ohio**



This man can broach  
2,500 bushings per day  
with a Special Type B

## **Lourie Arbor Press**

They are made of  
Any Capacity  
Any Width  
Any Stroke

**Hand or Power**

We make a large line of  
**Hydraulic Presses**

**Lourie Mfg. Co.**  
Springfield, Ill.

## **Be Kind to Your Men**



Don't make them  
sweat and labor over  
a press that operates  
inefficiently.

Let them do a prof-  
itable day's work—  
profitable to them-  
selves and to you—on  
an **ATLAS PRESS**.

*We can furnish any  
size and type machine  
you need. Investigate.*

## **Atlas Press Company**

**307 N. Park Street**

**Kalamazoo, Mich.**



# WEAVER

## Forcing Press

Capacity, 20 Tons

Leverage  
1500 to 1

An all steel constructed Press with an enormous leverage which enables one man to develop a pressure of 20-tons with perfect ease.

The unusual width—great adjustment—rare combination of strength with comparative lightness—and remarkably low price demand consideration.

### Built Right

\$48

Heavy 5-inch channel steel frame; hand wheel 15 inches in diameter, carried upon ball bearings. The thrust of the screw is directed against heavy Bronze Thrust Bearings. Screw 2 inches in diameter with 3-pitch Acme thread. Range of movement, 12 inches. *The screw does not revolve.*

The bolster has extreme adjustment of 48 inches. The width between frame uprights is 32 inches, height 74 inches, floor space 36x36 inches, weight 425 pounds.

**Net Price** Complete With Equipment **\$48.00**

## Weaver Manufacturing Co.

2179 So. 9th Street,

Springfield, Illinois

# Can You

**Head Fourteen Thousand  
Rivets For \$1.00?**

**If You Can't Do as Much You Certainly Need a**

## **Grant Noiseless Riveting Machine**

Any boy or girl at \$1.00 per day can head 14,000 rivets in bicycle mud guard braces, and similar articles, **IN TEN HOURS.**

Rivet heads formed by this machine have a highly polished finish.

Machine is absolutely **NOISELESS** in operation.

Breakage of castings or marring of surface of articles being riveted entirely eliminated.

Belt and motor driven machines for rivets up to 8-inch in diameter.

Send us samples to be riveted and returned to you.

*Catalog?*

**The Grant Mfg. & Machine Co.**  
C. E. Station, Bridgeport, Conn.



# Save Money On Your Die Filing

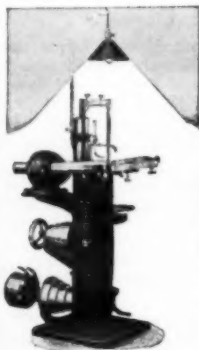
## **Use Cheaper Help with a Rearwin Die Filing Machine**

and do more and better work than the most highly skilled hand workman. It has improvements which make it an effective tool for rapid, accurate work. Table tilts to an angle of 7 degrees four ways. Gauge is provided with thumb screws to force work against the file. Stroke is adjustable to 7". Cutting edge of file easily aligned to travel straight with work, from which it is automatically released on the up-stroke. Adjustable for files 3" to 12" long. Machine runs either slow or fast, and works perfectly at all speeds.

*Details for the asking  
Write for them*

**W. D. Rearwin**

341 Mill Av., Grand Rapids, Mich.



# **Cochrane-Bly Company**

**Rochester, N. Y., U. S. A.**

*Manufacturers Of*

**Metal Sawing Machines**

**(Five Sizes)**

**Automatic Saw Sharpeners**

**(Two Sizes)**

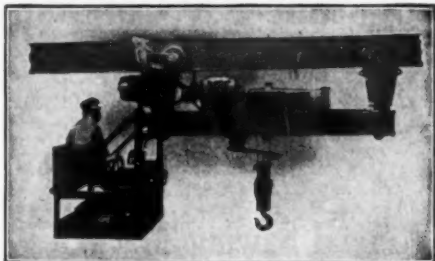
**Die Filing Machines**

**(Two Sizes)**

**Universal Die Shaper**

**When considering this class of equipment,  
would appreciate being consulted.**

## Mono Rail Hoists and Over Head Track Systems

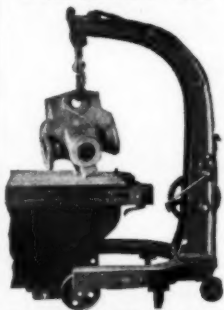


A 5-ton hoist operated from cab or floor for transferring material from one building to another, unloading cars, general yard work, etc. Mono Rail Hoists and trolleys of all types.

Nothing too large or too small for our careful, prompt attention.

**The Euclid Crane & Hoist Company**  
Euclid, Ohio

## Here's Handing You a Few Pointers from "U.S."—Means Dollars to You



### Canton Cranes

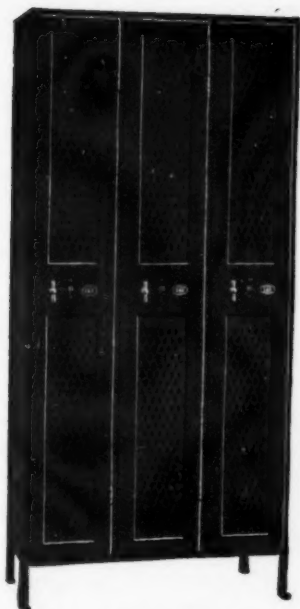
are used by Uncle Sam in his arsenals—5 at Rock Island and 6 at Watertown; Standard Oil Co. uses them in their plants at Worcester-Brockton and E. Providence. A complete list of users would be a long one.

### 30 Days' Free Trial

if you're from Missouri or some such state. Better mail your acceptance now.

**CANTON FOUNDRY & MCHE. CO., Canton, O.**





## **Terrell's Steel Lockers**

—are the acme of metal locker construction. They are made in every desirable style, for every purpose; and their production has been so systematized, with the aid of modern equipment, that they may cost less than you think.

*DON'T decide on Lockers until you write Terrell*

**Terrell's Equipment Company**

**Hall & Division Sts.,**

**Grand Rapids, Mich.**

Terrell's Unit System of Steel Shelving is another good thing

# Hill's Drilling Jig



Made in Three Sizes

## For Drilling Round Work

absolutely central within .001". A number of pieces can be exactly duplicated. Also can be used for drilling balls. Clamps to table of drill press.

10 days' free trial

Give size of bushing desired.

Furnished with any sized bushing

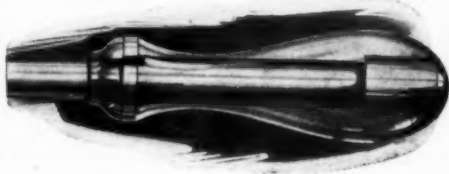
No. 1, capacity 1 in., largest bushing 5-16 in.

No. 2, " 2 in., " 1/2 in.

No. 3, " 3 in., " 1 in.

**M. B. Hill Manufacturing Co.**

33 N. Foster St., Worcester, Mass.



## Quick Action

This is what we call this new Machine Handle. Attached to any power tool, especially the heavier types; adjustments are made with more speed and less effort.

All kinds of standard and special Handles from steel for power tools and similar purposes.

Send for Catalogue and prices

**The Cincinnati Ball Crank Co.**

Oakley, Cincinnati, Ohio



*Taylor  
& Fenn  
Sensitive  
Radial*

## Lower Drilling Costs for 1916

—by installing a machine that has enabled many shops to do 2 or 3 times as much work as was formerly possible. If you have holes to drill up to  $\frac{1}{4}$ -in. in big, unwieldy pieces, it will pay you to investigate the merits of T. & Fs.

Their pre-eminence as cost reducers is due in part to our success in working out the problem of adjustments. These are so simple and easily made that the operator maintains without special effort a high rate of production. By using drilling heads of different types they can be made to cover nearly all drilling requirements within their range.

*However, there's more to tell. Let us send you full details, with cost records. If yours is an unusual problem, confer with us—we're at your service.*

**The Taylor & Fenn Company**  
Hartford, Conn.



*Look Here, Please!*

## A Sensitive Drill

**With Six Spindle Speeds**

from 600 to 2,400, with ample power for  $\frac{1}{2}$ -inch drills and plenty of speed for the smallest drills.

**Net Price, Only \$55**

*If your Dealer doesn't have them, write us*

**Francis Reed Co.**

43 Hammond St.  
Worcester, Mass.

A sturdy machine tool which approaches so nearly the workings of the human eye, is a mechanical masterpiece. Quick response, rapid action, precision—"as the eye is"—that's the Gang Radial.



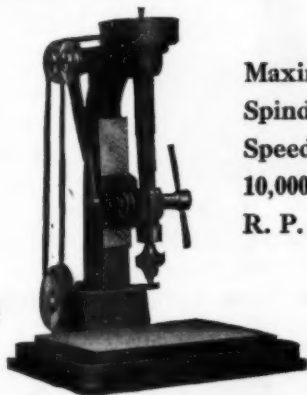
Our Radial Book Gives  
Details and Reasons.  
Ask for it.

**THE WM. E. GANG CO.**

Cincinnati, O.

# Save Money

with this  
**High Speed Drill**



Patents  
Pending

Maximum  
Spindle  
Speed  
10,000  
R. P. M.

**Double Your Production on Holes  
up to  $\frac{3}{8}$ " in diameter**

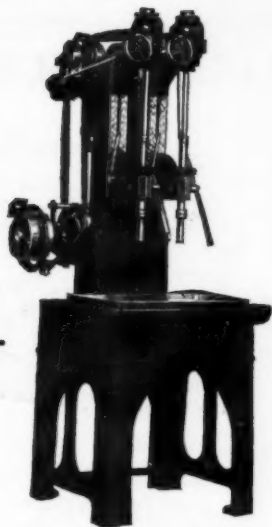
This machine is carefully and accurately built  
to give the greatest service. Equipped with  
Hess Bright Ball Bearings throughout.

*Ask for Bulletin No. 502*

**Leland-Gifford Co.**  
Worcester, Mass., U. S. A.







With  
One  
to  
Eight  
Spindles

For  
 $\frac{3}{4}$ -in.  
Drills  
and  
Smaller

## The Henry & Wright Is *the* Drilling Machine

There is a lot of difference between **a** drilling machine and **the** drilling machine.

Some of the largest users found it profitable to expend much time and care in picking out **the** machine that would drill holes at the lowest cost.

They selected the Henry & Wright as **the** drilling machine, and one plant alone has installed over 2,300 Henry & Wright spindles.

*May we tell you why?*

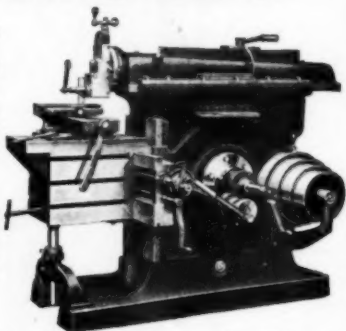
*And present you with our Feed and Speed Chart?*

The Henry & Wright Mfg. Co., 760 Windsor St. Hartford, Conn.

# SHAPERS

12", 14", 16"  
Plain Crank,  
16", 20", 25"  
B. G. Crank,  
either Cone  
Driven or  
through  
Speed Box.

24", 28", 32"  
Geared  
Shapers of  
the Belt Shift  
type.



**The Smith & Mills Co.** Station B.,  
Cincinnati, O., U.S.A.

## The "RHODES"

### A Combined Shaper and Slotter

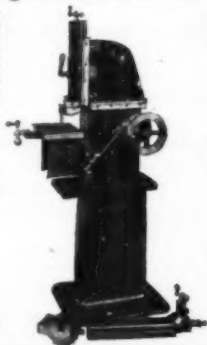
One of the handiest and most profitable machines on the market—designed especially to handle small work, for making tools, dies, models and shaping and slotting all classes of light work. A machine with all the essential features of larger machine tools, handy and productive on its own classes of work, at a purchase price so low that any shop can profitably afford to own it.

The "Improved Rhodes," as shown, is fitted with Vertical Attachment, which widens the range and makes it a practical vertical and horizontal machine in one.

Rigid, well made, accurate in production and durable in service.

*Send for more complete  
specifications, price, etc.*

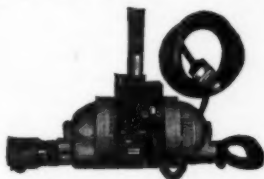
**Rhodes Mfg. Co.**  
Hartford, Conn.



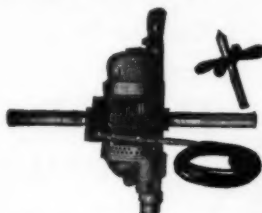


# Universal Motor Drills

For Use On Either Current



This drill is made in 3-16", 1", 3/8" & 1/2" size. Gears run in grease. Motor air cooled, and is made to stand hard service. Sent on trial.



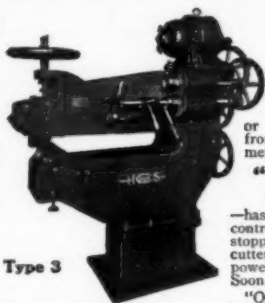
## 0 to 7/8 Universal Drill

The motors used in these drills are Westinghouse motors, and operate on 25, 30, 40 or 60 cycle. 110 or 220 volts.

**The U. S. Electrical Tool Co.**  
Cincinnati, Ohio

NEW YORK, 30 Church St. CHICAGO, 549 W. Washington Blvd.  
BOSTON, - 12 Pearl St. ST. LOUIS, - 610 Commercial Bldg.

Stock carried at branch offices.



**Type 3**

**Saves  
90% Labor**

## **No Cutting In From Side**

Type 3 "Quickwork" Rotary Shear cuts serpentine or the most irregular curves or openings in 3-16" thick steel or lighter without cutting in from side of sheet. Leaves metal perfectly flat and true.

### **"QUICKWORK" Rotary Shear**

—has 4 changes of speed instantly controlled by lever. Started and stopped at any point of cut. Upper cutter raised and lowered by power. Saves 5 to 40% of stock. Soon pays for itself.

"Quickwork" Rotary Shears are made to cut from 16 gauge to  $\frac{1}{2}$ " thick steel. Sold on trial—fully guaranteed.

Send for free sample cuttings, descriptions and prices. Write today.

**H. Collier Smith**

**815 Scotten Ave.,**

**Detroit, Mich.**



## **Beaudry Hammers**

**For General Forging**

**Saves Fuel, Time  
and Labor.**

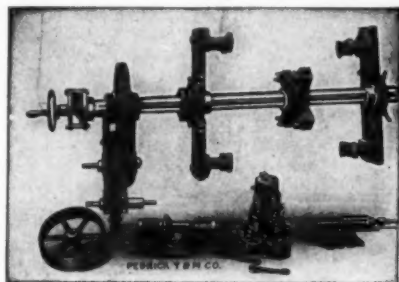
**Cuts Forging Costs  
in Two.**

***Belt or Motor Driven***

**Beaudry & Co., Inc.**

**141 Milk St., Boston, Mass.**

# Headquarters For Portable Boring Bars



Since the time Portable Boring Bars were first manufactured the Pedrick name has been intimately connected with them, and this association has been the means of making every improvement that is in evidence today on our type of machine.

For convenience, accuracy and durability you will find our equipment more than satisfactory and capable of saving time and money in such measure that the cost is largely returned at every using.

*Write for a bulletin on this tool and our others:*

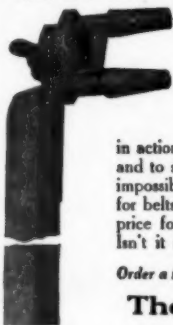
Pipe Benders, Portable Millers, Crank Pin Turners, etc.

## **Pedrick Tool & Machine Co.**

3644 N. Lawrence St., Philadelphia, Pa.

## "Safety First" Belt Stick

Mighty Good Insurance Against Accidents in Belt Shifting



The old fashioned "stick" with a pin in the end for shifting belts is a fruitful source of accidents. The same stick with our "Safety First" shifter attached, as shown, makes this dangerous job absolutely safe.

The three rollers, two being tapered, in action tend to slide the belt on to the pulley and to slide the shifter away, while making it impossible for the shifter to catch. Two sizes, for belts 1 to 4" wide, and from 4 to 6"; one price for both, \$1.25 each, or \$12 a dozen. Isn't it simple? And good? And cheap?

*Order a few for trial; you'll be glad you found them.*

**The Ready Tool Co.**  
Bridgeport, Conn.

## It Saves Much and Costs Little to Put Your Bar Stock In Shape



THE MEANEST STOCK to store and handle, as a rule, is pipe, shafting and bars. But if you have

### "The Handiest Racks"

it is easy to assort your bar stock and pile it neatly in a fourth the space, to quickly find and get at what you want—saving space, time, accidents, and uncertainty on count and assortments.

On account of advancing foundry costs, the quicker you order the better prices we can make you.

*Will you write today?*

**Wm. S. Yohe Supply Co.**

314 Lincoln Way, West,

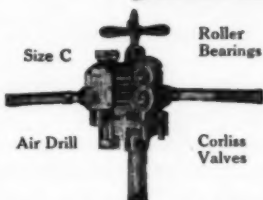
Canton, Ohio

**Why Take A Chance?  
You Don't  
If You Specify**

**Pneumatic  
Tools**

**Thor**

**Electric  
Drills**



A mechanical man for one of the largest construction companies in the South writes:

"The two Thor Tools recently purchased are the greatest Air Tools I have ever seen, and I have used pneumatic tools all my life."

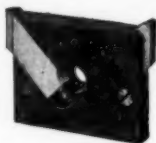


**No. 90. One-Piece Pneumatic  
Long-Stroke Riveting Hammer**

*All Thor tools shipped on trial. Write nearest branch  
for particulars. Circular "W" shows complete line.*

**Independent Pneumatic  
Tool Company**

**Chicago      New York      Pittsburgh      Detroit  
San Francisco      Atlanta      Montreal**



**The Production Boss**

**"Don't Care A Cuss"**

What make or kind of tool he uses—he wants **SERVICE**; he must have **continuous PRODUCTION**.

## **SHRAPNEL Tools**

**The Kelly Adjustable Kind**

**THE KELLY REAMER CO.**  
**CLEVELAND, OHIO, U. S. A.**

C. W. Burton Griffiths & Co., London English Agts. 40 Domestic Agencies.

## **NICHOLSON** **Expanding Mandrels**



**Speed**

**—this Mandrel gives it!**

There is no delay, no hesitancy, no doubt, when you use this mandrel.

There is no measuring, no calipering.

You are always positive that it will fit perfectly.

The principle on which the Nicholson is built—and that it is appreciated and fully understood is evidenced by the huge number of shops that have made it a standard tool—does not allow of doubt or imperfect fits.

The tapered grooves in the arbor, the corresponding tapers in the jaws, give an infinite range of sizes between the limits of the mandrel.

*We will gladly loan you one of these high speed mandrels for test. Send for yours today. No obligation.*

**W. H. Nicholson & Co.**  
**117 Oregon St., Wilkes-Barre, Pa.**



## **Change the Speed to Suit the Work**

Meet every change in material or size of work by a corresponding change in speed. It's the only way you can get maximum output from machines doing miscellaneous work or performing various operations on the same piece. Apply

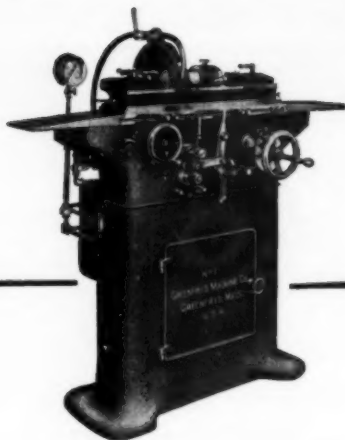
## **Reliance Adjustable Speed Motors**

and get just the speeds you want. These motors run at any speed with a constant horsepower output over any range up to 1 to 10. To change the speed just turn the handwheel.

*For details ask for Folder 10L.*

*(We build constant speed motors.)*

**Reliance Electric & Engineering Co.**  
1050 Ivanhoe Road,                      Cleveland, Ohio



# Save Expense

Finish your small turned parts by grinding

The *Greenfield* Way

This means grinding on a small machine, taking light cuts with a rapid table traverse. It saves in power and in wheel wear.

The increase in table travel enables this light machine to compete in production with large and heavy grinders. It would not be possible without the hydraulic feed.

*Better look into this*

**Greenfield Machine Company**  
Greenfield, Mass., U. S. A.



**This is An Inexpensive  
Cutter, Reamer and Drill Grinder**

**It has Generous Range and Capacity  
The Price is Within Your Reach**

**Don't delay—look it up now!**

**Particulars, prices, etc., sent on request.**



**Style BX**

**We also make**

**Drill Grinders—Surface Grinders—  
Lathe Center Grinders—Universal  
Grinders—Tool Grinders—etc.**

**Wilmarth & Morman Co.**

**1185 Monroe Ave., Grand Rapids, Mich.**

# Combination Disc Grinder & Roll Sander

**"Best machine ever built for pattern shop use"**

**Patented**



The No. 20 Gardner combines both the disc wheel and the sanding roll into a compact, sturdy and accurate machine. The disc wheel is used for producing flat surfaces and external curves; the sanding roll perfects internal curves which have been roughed out on a band saw.

Both this disc wheel and the roll remove stock with extreme rapidity and accuracy. With this machine at hand your apprentice boy can do, with greater speed and quality, much of the work formerly done by your best man. A Gardner No. 20 soon pays for itself in any modern pattern shop working four or more men.

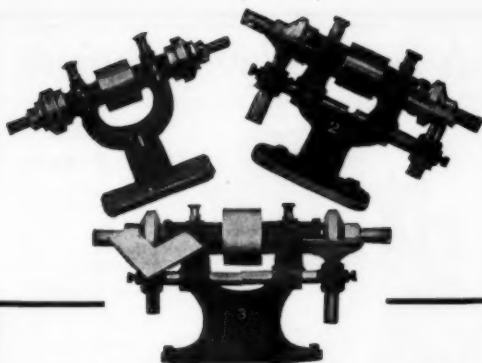
*Get the details today*

**Gardner Machine Co.**

*The Disc Grinding Authorities*

**Beloit, Wisconsin**

**Largest Disc Grinder Builders in the World**

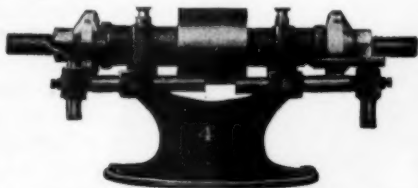


## Special Value in Grinders

**Partridge Tools are Efficient and Economical**

Yes, they look like others, but you will find a real difference in details of design and construction. They are built like machine tools, with the arbors and collars accurately turned and balanced, and properly lubricated and protected against dust.

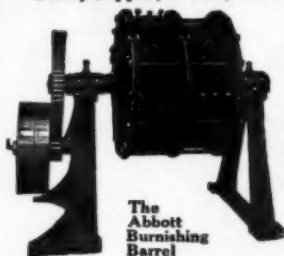
Partridge Grinders run easier, last longer, and give better service. Made in quantities sufficient to keep down both manufacturing costs and the price. I can serve you in Bench, Column and Cabinet Grinders, Foot Presses and Bench Tapping Machines — every one containing extra value because I want your repeat orders. Just write to



**E. O. PARTRIDGE, 2041-49 W. Lake St., CHICAGO**

# A Better Way to Burnish

Steel, Copper, Nickel, Silver, Gold or Plated



The  
Abbott  
Burnishing  
Barrel

## *The Abbott Steel Ball Process*

means that one man, instead of finishing one piece at a time, can tend several barrels at a time, each barrel finishing thousands of pieces. No articles are broken, and the finish is perfect. Costs are reduced 75 to 99 per cent.

*Our copyrighted Book on  
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## **The Abbott Ball Company**

Elmwood District, Hartford, Conn.

We also make Steel Bearing Balls. Let us quote. What size?



# Blueprints

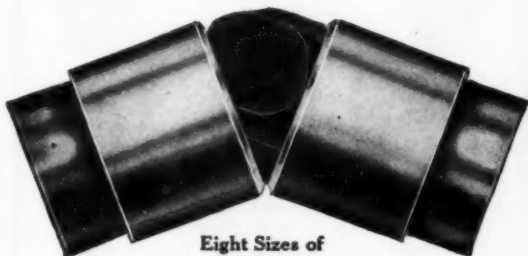
## **The Wickes**

Continuous Electric.  
Sells at half the  
price. Uses half  
the current  
of others.  
Perfect prints  
up to 48" in  
width and of  
unlimited  
length.

**Wickes Bros.,** Water St.,  
Saginaw, Mich.

# G. & P. Universal Joints

For use on adjustable Gang Drills and Wood Boring Machines; on the moving feed shafts of Milling, Grinding, Boring, and various Special Machines; for driving self-aligning Boring Bars; for operating mechanisms for Revolving Ventilating Funnels on Steamships; for adjusting mechanisms for Gun Carriages; on Printing Presses and other Paper Handling Machinery; for connecting engine shaft to propeller shaft on Motor Boats, and for all similar purposes.



Eight Sizes of

## Strong, Positive Angular Drives

From  $\frac{3}{4}$  inch to  $2\frac{1}{2}$  inches, varying in size by quarters of an inch, with solid blank ends

They transmit a thrust or tension without play or looseness in any direction. All wearing parts are thoroughly case-hardened. They have no sharp edges to wear other parts. They have no screws or small parts to get loose. They have given many years of satisfactory service in this country and abroad, under all conditions.

Tell us size of shafts to be connected, r. p. m. of joint, the angle, the h. p. to be transmitted, and tool or machine you wish to drive, and let us recommend a Universal Joint for your purpose.

*Let US worry over your requirements*

**GRAY & PRIOR MACHINE CO., Hartford, Conn.**

# Tucker's Safety First



Closed

## Oil Hole Covers

Require but one hand to pump in the oil. Adapted to all kinds of mechanism having oil holes leading to a bearing.

*Send for Catalogue  
Oil Hole Covers  
and Compression  
Grease Cups*



Open



Style C



Style F, Drive



Style A



Style D



Style B



Open



Closed



Compression  
Grease Cup



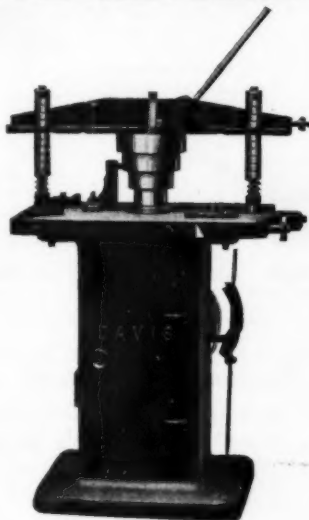
Rotary Head

**W.C. & F.C. TUCKER, Hartford, Conn.**

***Rapid Production***

guaranteed when you use

# DAVIS KEYSEATERS



## **No. 1 Keyseater**

Slotting, oil grooving, cutting of keyways  
in pulleys, gear blanks, bell cranks, and  
similar work economically done.

*Write for circulars. Treatise on Keyseating  
sent on request.*

**DAVIS MACHINE TOOL CO., INC.**  
Rochester, N. Y., U. S. A.

# Pattern Shop Machinery

Special Prices if you refer to this ad.



## Band Saws

Chicago No. 00 27 in. Wheels

" No. 0 32 " "

" No. 1 36 " "



## Saw Tables

Chicago No. 5 Stationary Table

" No. 9 Tilting Table

" No. 10

Boring attachment if wanted.



## Jointers

8 in., 5 and 6 ft. tables and guard.

12, 16, 20, 24 and 30 in., 7 ft. tables and guard.

Trimmers, Lathes, Core Box Tools, etc.

Ask for full descriptions

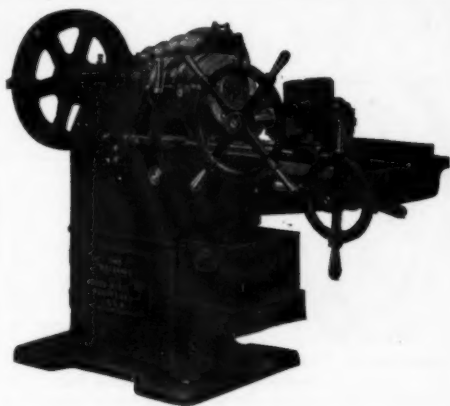
## Chicago Machinery Exchange

1214-1228 Washington Boulevard, Chicago

## Machine Tool Makers

should investigate carefully the facilities offered by **Hitchcock's Machine Tool List** for reaching this trade in all parts of the country. Its circulation is specialized to completely cover *every line of manufacture* in which machine tools are used—as well as all railroad and other tool-using shops—with a thoroughness and effectiveness not equalled by any other advertising medium.



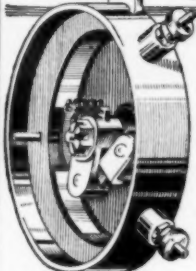


## Reliance Bolt Cutters

Built in sizes  $\frac{3}{4}$  inch to 6 inches, Single, Double and Triple, of the most up-to-date design. There is, also, a good reason why the "Reliance" is such a satisfactory machine for accuracy of threads cut, large production and low cost of maintenance, even in the hands of inexperienced labor. A lot of this reason is in the Opening Die Head, and we would like to tell you all about it. Interesting information for the asking.

**The Foote-Burt Co., Makers**  
Cleveland, Ohio

# Vul-Cot Fibre



## **For Insulation— for Bearings— for Drives—**

In tubular form, Vul-Cot Fibre makes excellent small high-speed bearings; it is used for noiseless gearing, for thrust bearings, and as friction washers; as a friction material for friction drives, where a combination of electrical and mechanical qualities is desired, and for high-tension insulation.

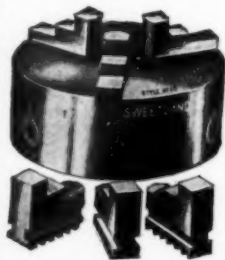
Available in any quantity, ready-machined to definite specifications, or in sheets, rods, tubes and bars.

*Write for complete engineering and other data now.*

**American Vulcanized Fibre Company**

560-570 Equitable Building, Wilmington, Del.

## **Let Us Tell You About Sweetland Chuck Service**



**The Service  
That Means  
Efficiency  
In All  
Chucking  
Work**

**The Hoggson & Pettis Mfg. Co.**

New Haven, Conn.

# ECONOMY

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## Universal Geared Scroll Chuck

### Iron Body No. 143

For Shell Work this Chuck is particularly adapted, inasmuch as the center hole can be bored out to a suitable diameter to receive the shell it is to hold. The Jaws are also stepped for internal gripping such as rings, etc.

This type of Chuck is also regularly furnished with Extra Heavy Iron Body or with Steel Body in three or four jaw style.

*See The Union Catalogue*

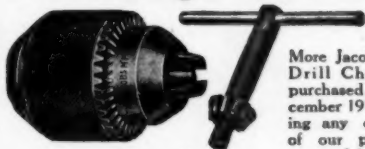
**Union Manufacturing Co.**

New York Office,  
26 Cortlandt St.

New Britain, Conn.

Makers of a Complete Line of Chucks

## Increasing Sales! Why?



Patented Sept. 16, 1902

More Jacobs Improved Drill Chucks were purchased during December 1915, than during any other month of our phenomenally successful career.

Our first customers of thirteen years ago have since continuously, and increasingly purchased Jacobs Improved Drill Chucks.

**Why?**

**Satisfied Customers.**

**Are You One?**

*Our illustrated catalogue H sent upon request.*

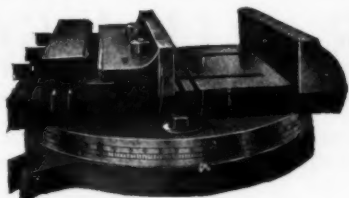
**The Jacobs Manufacturing Co.**  
Hartford, Conn., U. S. A.



We manufacture a great variety of  
Lathe Chucks, Drill Chucks, Centering Chucks  
Also  
Portable Jaws for Lathe face plates and Machine tables.

*Let us send you our Catalog*

**The Cushman Chuck Co.**  
Established 1862                      Hartford, Conn.



With  
Round  
Swivel  
Base

## 16 Sizes of Skinner Planer Chucks For Heavy Service

The strongest and heaviest planer chucks made. They will not spring under the severest service. The heavy jaws will permit of repeated redressing, and they hold the work firmly to the table. The Round Swivel Base Chucks are accurately graduated in degrees.

These substantial chucks are particularly useful where the light-weight chuck would be practically useless—in railroad shops, in steel mills, or wherever the requirements are severe—the kind you can rely on under all conditions.

Skinner Lathe Chucks, Drill Chucks, Drill Press Vises and Face Plate Jaws are all standard tools of ingenious design, careful construction and proven merit.

*You need our tools; we want your business.  
Won't you start it with a card of inquiry?*

### The Skinner Chuck Co.

New York Office:  
94 Reade Street.

Factory and Main Office:  
New Britain, Conn.

With  
Square  
Base



# A Real High Speed

Cuts a 3-inch Cold Rolled Steel

And yet it works with so thin a blade that in a short time in the saving of stock and saws. A blade



# Peerless Power Hack Saw

Steel Bar in Less Than Two Minutes

in cutting high-priced material it will pay for itself in a black 1/2-inch, .027 thick, can be handled successfully, while so rigid is the machine, and so perfect its operation, that it will meet any blade conditions; if you run short of special blades, you can get satisfactory results from any that may be available.

The Peerless Hack Saw is built for heavy duty and high speed. It is a real machine tool, as its appearance shows. Cutting low carbon steel or other materials that can be worked at high speed, it is guaranteed to run at 250 r. p. m., at which speed it will cut off a 3-inch bar inside of two minutes. This means profit, for every minute saved in cutting time is money earned.

The machine is semi-automatic, with gravity feed, instantly controlled with one lever. The blade lifts, also by gravity, on the non-cutting stroke. It is practically fool proof, and simple in adjustment and operation. Many improvements in control, in holding stock, and in lubrication are embodied in the design, the latest success of the originators of the high speed power hack saw.

## Thirty Days' Free Trial

Let us send you one to be tested for a month in your own shop, on your own work, without obligation to buy if not entirely satisfactory. You take no risk whatever.

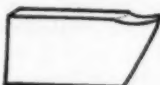
*Get Your Trial Order In Early*

## Peerless Machine Company

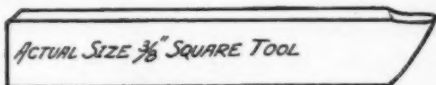
1609 Racine St., Racine, Wis.

# This Stellite Tool

Turned off 4,370 lbs. of Cast Iron



or 33,000 times its own weight  
of metal in 20 days



The tool cost 75 cents.

It earned a net profit over a  
steel tool of \$41.80

The above is not simply a claim,  
but a **certified record from actual  
practice.**

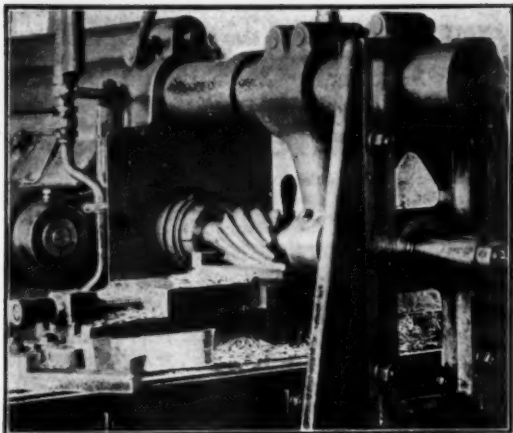
Stellite tools cut iron or steel from  
 $\frac{1}{4}$  to 3 times faster than high speed  
steel tools.

Sample tool  $\frac{3}{8}$  inch square by  
 $2\frac{1}{2}$  inches long, post paid, 75 cents.

## Haynes Stellite Company

Kokomo, Indiana





## Why We Use Brown & Sharpe Cutters

Simply because we make them, you will say. No, it is because they give *profitable results* in our big plant. Our line of work—making machine tools and precision tools—is most exacting; present day competition demands efficiency, that's why, for our own interests, B. & S. Cutters must be the best that we can make.

The things we want are the things you want—good milling produced economically. When B. & S. Cutters meet our manufacturing requirements then, they should be able to meet yours. If they are not already in your shop, give them a chance to prove this.

*May we send Catalog No. 26 which lists our entire Cutter line?*

**Brown & Sharpe Mfg. Co.**  
Providence, R. I.

---

**YOU Want Tool Holders that have MADE GOOD**

**Armstrong Tool Holders**

Were Awarded The

**Grand Prize**

The Highest Possible Award at the Panama-Pacific  
International Exposition—1915

*They Always Make Good*



They Are Used in Most of the Big Machine Shops of the World

Send for Catalog

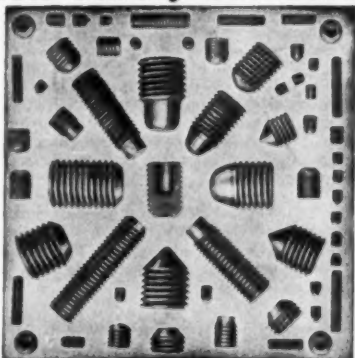
**Armstrong Bros. Tool Co.**

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.



**Allen Safety Set Screws**



Send for circular No. 13 and sample screws (for testing).

**ALLEN MFG. CO., - Hartford, Conn.**

# Increased Safety

At Less Cost

With

## Unbreakable Steel Counter- shaft Hangers



"Bantam"  
For  
Light Shafting

The cost of steel hangers is somewhat under that of cast iron, and they are in every respect greatly superior. They have greater strength, equal rigidity, and are proof against breakage, in shipment, in handling, or in operation.

Our ring-oiling bearing solves the problem of lubrication, requiring only occasional attention, and keeping the shaft thoroughly oiled all the time. Nothing could be simpler, and experience has developed nothing better.

All sizes ready for quick delivery. Let us send our book of Hanger and Shafting information. It will cost you nothing, and the data given are really valuable.

*Write for it now*

**Standard Pressed  
Steel Company**  
Philadelphia  
U. S. A.



"Hollowell"  
For  
Medium Shafts

## Dickow's Accurate 10-Inch Universal Index Centers Give Big Service for Small Cost

SAVE YOU from \$40 to \$90 on first cost, and many times that by their simple construction and consequent ease of operation. Let's prove it to you. We are originators of the design.

**Price Only \$95 Net,**



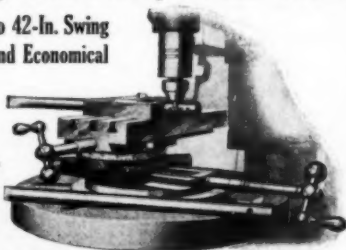
**F. O. B.  
Cars  
Chicago**

**Get the Original—Accuracy Guaranteed**  
*Sold by all dealers. Write today for particulars.*  
**Fred. C. Dickow, 35 So. Desplaines St., Chicago, Ill.**

## Milling With Any Drill Press

**From 14 to 42-In. Swing  
Efficient and Economical**

**For the  
Diemaker  
Patternmaker  
Repair Shop  
Garage, etc.**



THE ABOVE shows the Davis Milling Attachment at work cutting Woodruff keyseats in automobile axles; also mills deep grooves or slots, cuts clutch jaws and mills cams, etc. In large shops the Davis comes in very handy to relieve the big millers when they are tied up with work. Yes—the price is right. Let's hear from you.

**Hinckley Machine Works, HINCKLEY, ILL.**

**Mill, Bore  
or Drill  
At Any  
Angle  
With Only  
One Setting**

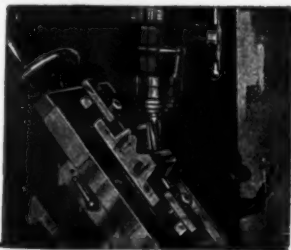


## **Knight Milling and Drilling Machines**

have lowered the cost of hard machining in shops of all kinds. They have no equal for dies, jigs, metal patterns, etc., and reduce high priced labor 20 to 50 per cent in tool room and experimental department. They have the convenience of 2 or 3 ordinary machines. The three sizes weigh respectively 600, 1200 and 2300 lbs. Our Duplex Miller is also a great time and labor saver—yielding you a handsome profit long after its price has been forgotten.

**W. B. Knight Machinery Co.**  
**St. Louis, Mo.**

*On request  
we will send  
Circulars and  
interesting  
Booklet.*



## Designed For Manufacturing



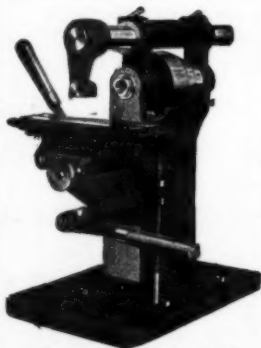
But built good enough for the Tool Room. If you have any doubt about it, just try one. Our two-speed Friction Counter and plain Index Center help you to do the trick.

*Send for circular*

### **The Carter & Hakes Co.** **West Winsted, Conn., U. S. A.**

Agents for New England, also part of New Jersey and New York: —  
Hill, Clarke & Co., Boston and New York.

For Chicago and adjoining territory: —  
Marshall & Huschart Machinery Company, Chicago.



### **Burke's No. 3** **Bench Millers**

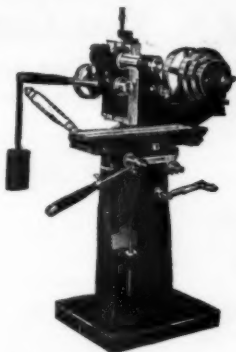
#### **Are Seasoned Tools**

Our system of tests insures accuracy, and our methods of construction make it permanent. Frames and parts are carried 6 to 8 months, after work begins on them, before the completed tools receive our final O. K., and all parts are finished and fitted with exceptional care.

Longitudinal feed, 6 in.;  
traverse feed, 3½ in.; vertical  
motion of knee, 8½ in.; table  
surface, 3½x12 inch.

*Write for Catalog, which also shows larger and smaller sizes.*

### **The Burke Machine Tool Co.** **Conneaut, Ohio**



## **"Whitney" Hand & Weight (feed) Milling Machine**

Wide range with simple construction.

Greater Power than can be obtained on any other Hand Milling Machine of an equal size.

Vertical and Horizontal Feeds are independent. This feature permits work to be held close to the table and makes the Machine a Profiler.

The Spindle Head has Vertical Lever Feed and is accurately counterbalanced.

As the Vertical Lever Feed is independent from the Table and the Head accurately counterbalanced, light Milling may be done on long or heavy pieces without danger of breaking cutters.

The Spindle is driven by Interchangeable Side Driving pulleys, which, in connection with three Grade Cone on Back Shaft, gives Six Spindle Speeds.

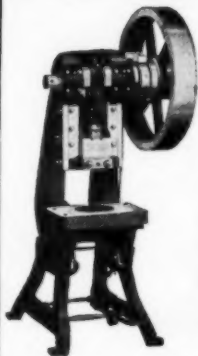
The Table has Hand Lever Feed, also Crank Feed operated by Rack and Pinion.

The Pinion shaft is mounted in an eccentric bushing to allow for adjustment of pinion with rack.

Weight attachment is furnished for feeding both Head and Table automatically.

*Catalog No. 10 Gives Full Particulars.*

**The Whitney Mfg. Co., - Hartford, Conn.**  
**Chains — Keys — Hand Milling Machines.**



# You Can Not

Put Your Finger On  
A Single Weak Spot In

HIGH DUTY  
**ROCKFORD**  
PUNCH PRESSES

Where strain is the heaviest  
the Rockford is toughest.  
Before you decide on a press,  
write for full information about  
these manufacturing presses.

**ROCKFORD IRON WORKS**  
ROCKFORD, ILL.

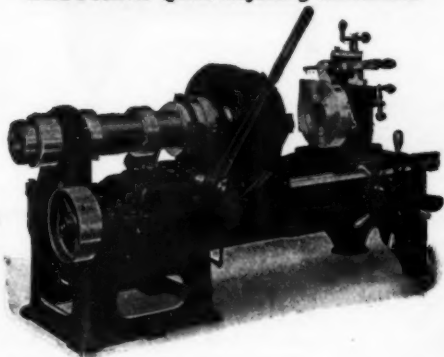
### WHEN YOU INQUIRE

of advertisers herein, won't you kindly remember to say somewhere in your communication that the inquiry comes from Hitchcock's Machine Tool List? Advertisers are human; they like to know that the medium in which they spend their money is received and consulted by machinery users. Not being mind readers, they can only know this when you tell them, and if you neglect to tell them, the Tool List is deprived of credit for the service it has rendered.



# Bignall & Keeler Pipe Threading Machines

With Peerless Quick Adjusting Mechanism



## *When you consider:—*

That every B. & K. has built into it the conveniences and sterling wearing qualities that 32 years' experience has taught us;

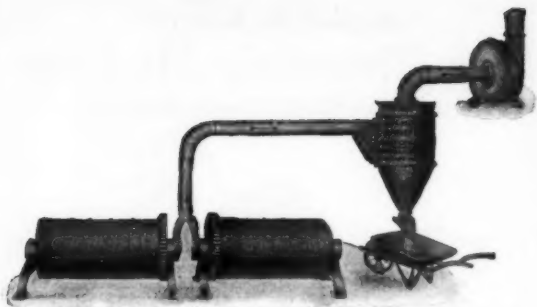
—that every one is equipped with a mechanism that allows quick and reliable adjustments to be made to the thousandth of an inch without the use of tools;

—that you have 17 styles and sizes to choose from, to cut pipe from  $\frac{1}{4}$  to 18 in. in diameter.

—that B. & Ks. stand up to the hardest work, and can be handled without gloves—

*Doesn't it seem likely that we could satisfy you as we have satisfied thousands of others? Try us and see.*

**Bignall & Keeler Machine Works**  
Edwardsville, Ill.



→ **Knickerbocker Says** ←

## Prevent Costly Wearing Out



"For instance, the coarse sand from tumblers and sand blasts and the emery from grinders, wear out the spider, the blades and and the casing itself—of the fan. And you force this sand that cuts out iron and steel into a bunch of cloth screens to stop the sand and let the air pass on. The theory is fine—but how about the practice? Listen, one firm writes:

'We might advise we have a 300 unit dust collector made by..... This Collector has been giving us more or less trouble due to the fact that the curtains wear out about every eight months and must be replaced at an expense of at least \$175.00. This arrester collects the dust from 12 tumbling mills.'

The remedy?

Put a Morse "Rarefied" ahead of this fan to collect the sand and emery and stop the cutting out of fan and screens."

*Send for Booklet and list of prominent users*

**The Knickerbocker Company**  
Jackson, Michigan

## **Contract Work Wanted**

This department is exclusively for those desiring machine, press or die work on contract. Advertisements must be set in uniform style, as shown, and without other display, or any variation in arrangement or in kind or size of type. The heading must express, as nearly as possible, the particular sort of work wanted, in order that any facilities offered may be easily found. Rates: one-eighth page, three months, \$12; one year, \$40.

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### **Stampings by Contract**

We have complete facilities for stamping, drawing and forming of sheet metal. Our presses are best suited for medium and large size stampings. We are equipped for baked enameling, spot and acetylene welding. Send us sample, sketch or blue-print for estimate. **The New Britain Machine Co., New Britain, Conn.**

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### **Dies, Tools—General Machine Work**

We are equipped to render satisfactory service on all kinds of general machine work. No job too big or too difficult. Established 1876. **Chicago Die & Machine Works, 415 N. Carpenter St., Chicago, Ill.**

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### **Brass Castings—Sand Blasted**

Castings of every description made in brass, bronze, copper, aluminum and white metals, ranging in weight from 1 ounce to 1,000 pounds each. Specially equipped with power moulding machines for the handling of split, gated and plate patterns. All castings sand blasted. **Faunt Bros., 1555 Fulton St., Chicago, Ill.**

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### **Metal Stampings—Screw Machine Products**

Give us the amount of pieces required of each style. The larger the quantities the closer we can figure. We require absolutely accurate work in our own manufacturing departments, and our rigid inspection service is at your command. **Harvard Electric Co., 527 W. Van Buren St., Chicago, Ill.**

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### **Brass, Bronze and Aluminum Castings**

Castings of every description made in brass, bronze or aluminum. Brass finishing, screw machine and punch press products. Polishing and electro-plating. We are fully equipped to furnish complete brass and metal parts of every description. **Kelly Brass Works, 226-232 W. Ontario St., Chicago, Ill.**

---

### **Inventions Perfected**

Years of experience in this work enable me to render you a satisfactory service. Special and automatic machinery a specialty. **R. D. King, Consulting Engineer, 519 Monadnock Bldg., Chicago, Ill.**

---

### **Tools and Dies**

#### **Light and Medium Metal Stampings**

We have the equipment for and can do small, accurate work in tools and dies, also light and medium metal stampings. **Keystone Tool, Die & Model Works, 313 S. Clinton St., Chicago, Ill.**

## CONTRACT WORK WANTED

---

### **Brass Finishing—Metal Patterns—Screw Mach. Products**

Special brass work of every description, metal patterns and screw machine products. With a well-lighted shop, good tools and good mechanics, we believe we can satisfy you with our service. **B. W. Pokorney & Co., 132-134 S. Clinton St., Chicago, Ill.**

---

### **Brass, Bronze and Aluminum Castings—Brass Finishing**

Daily capacity 10,000 pounds; castings in brass, bronze, aluminum, phosphor bronze; all alloys made from virgin metals. Complete equipment of brass finishing tools, including Monitor Fox speed double head lathes. Polishing and electroplating department complete in every detail. Established 1883. **J. J. Ryan & Co., 110 S. Jefferson St., Chicago, Ill.**

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### **Special and Automatic Machinery—Dies, Tools, Models**

If it is dies, tools, jigs and models or special and automatic machinery that you require, we have the equipment and experience to take care of you in the best possible manner. Let us figure on your work. **Strand Bros. Co., 617-631 W. Jackson Blvd., Chicago, Ill.**

---

### **General Machine Work—Dies, Tools, Models Punch Press and Screw Machine Work**

We are equipped to render the best of service in dies, tools, models, punch press and screw machine work. Specialties for bicycles and motorcycles. **L. Wilson Novelty Works, 222 S. Clinton St., Chicago, Ill.**

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### **Do You Want Contract Work?**

If so, state in one of these spaces what you are prepared to do, and it will go into more manufacturing plants than if published in every mechanical journal in this country. The cost is low for a service covering metal-working plants of all kinds everywhere in the United States. **A. H. Hitchcock, Publisher, 1220-1235 Caxton Building, Chicago.**

---

### **Brass Finishing—Screw Machine Products**

Special brass work of every description, screw machine products out of brass or steel, also internal and external grinding. Your blue prints or specifications will receive prompt attention. We believe we can satisfy you with our service. **Ideal Brass Works, 10th & Canal Sts., Indianapolis, Ind.**

---

### **Screw Machine and Milling Machine Products**

Send us your blue prints and samples of screw machine and milling machine products to figure on. We are equipped to give you the class of work you want, just when you want it, and at the right price. **J. Horat Company, 417-421 Ferry St., La Fayette, Ind.**

---

### **Dies, Small Machine Parts, Etc.**

We have facilities for special contract work, dies, small machine parts, etc. Send us blue-prints or specifications. **Louis Meter, 182 Fifth St., Benton Harbor, Mich.**

## CONTRACT WORK WANTED

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### **Models and Machine Parts Designed and Built. Sheet Metal Stamping—Job Work.**

We are equipped for designing and building of models and machine parts; dies, jigs, gauges and job work; sheet metal stamping. Send blue-prints for estimates. **Globe Tool & Mche. Co., Grand Rapids, Mich.**

---

### **High Grade Machine Manufacturing**

We are equipped to manufacture high grade specialties and intricate machines, such as typewriters, adding machines, etc. Can improve a defective design, producing a machine that will work and sell. We especially desire problems of this kind. Large facilities for small stampings. **Grand Rapids Brass Co., 66-90 Scribner Av., Grand Rapids, Mich.**

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### **Tool and Die Work**

Every kind, for which we have the machinery and skilled labor to produce results. We are equipped also for special machine work. Our particular specialty is high grade service. Can you use that kind? **Manhattan Brass Works, Grand Rapids, Mich.**

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### **Sheet Metal Stamping, Dies and Tools**

We solicit your inquiries for sheet metal stamping; manufacturing a specialty. We do electric plating. **Winter & Stryker, Grand Rapids, Michigan.**

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### **Work for Your Idle Equipment**

You can get it, if you will let manufacturers know just what you can do. Tell them through this department. The cost is small; the distribution covers the metal manufacturing people everywhere in the United States.

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### **Stampings**

Can you use any of our surplus stamping capacity? We would like outside orders and will make tempting prices. Facilities modern and first-class, and our products will stand rigid inspection. Let us show what we can do. Send samples, blue prints or specifications. **Hastings Mfg. Co., Hastings, Mich.**

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### **Metal Stampings—Dies, Tools, Jigs**

Send blue prints or samples for estimate.  
**Lansing Stamping & Tool Co., Lansing, Michigan.**

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### **Castings and Forgings**

Cast and forged specialties and novelties made to order in brass, bronze, nickel, German silver, iron or steel. We finish, electro-plate and japan. Send samples for estimate. **The Steffens-Amberg Co., Newark, N. J.**

## CONTRACT WORK WANTED

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### Sheet Metal Stamping and Manufacturing

We solicit your inquiries for light sheet metal stamping and manufacturing of specialties. O. D. Johnson Stamping Works, Batavia, N.Y.

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### We'll Make It—Your Metal or Wood Specialty

We have unusual facilities for producing specialties in both metal and wood. Experimental and model work, pattern making. Jigs, dies, sheet metal work. Write for details. Gas Engine & Power Co. and Charles L. Seabury & Co., Consolidated, Morris Heights, New York City.

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### Tell Them What You Can Make

The more manufacturers who know just what you can do for them in the way of special contract work, the better your chance of getting orders. This department enables you to tell them all at least possible cost.

---

### General Machine Work—Dies, Tools—Special Machinery

We are equipped to build machines of every description—sheet metal punches and dies—tools, models and jigs—long brake dies. Our object is high grade service. Send b. p. for estimate. Canton Machine Shop, 320 Rex Ave., Canton, Ohio.

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### Pressed Steel Shapes

With our heavy hydraulic presses, we can handle any pressed steel shapes using  $\frac{1}{4}$ -in. stock or heavier at a very reasonable production cost. Our modern facilities also enable us to do plate or structural work upon a basis of close economy. Your inquiry is solicited. Greenville Steel Car Co., Greenville, Pa.

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### Pressed and Stamped Steel Parts

It will pay you to let us figure on such pressed, stamped or drawn metal articles or parts as you may require, be they made of steel, aluminum, brass or copper. Our 15-acre plant at your disposal. Get the benefit of our "Knowing how since '81". Send samples or blue prints for estimate. Geuder, Paeschke & Frey Co., Milwaukee, Wis., 1325-1700 St. Paul Av.

---

### Steel Novelties

We are well prepared to manufacture your steel novelties and devices at bed-rock cost for satisfactory work. Have a complete electro plating, galvanizing and tinning outfit. We make necessary dies from your drawings, also small brass castings. Work shipped on approval. Write for estimates. Two Rivers Plating Works, Two Rivers, Wis.

---

### Want Orders for Die Casting?

This is the place where you can offer your facilities to users of metal products everywhere in the United States. Many readers of the Tool List are in the market for die castings, and they would welcome information as to what you can do for them.

## **Wanted:—**

**Engine Lathes, Turret Lathes,  
Screw Machines, Milling Ma-  
chines, Boring and Turning Mills,  
Planers, Shapers, Bolt Cutters,  
Grinding Machines, Punches  
and Shears, Drills, or any kind  
of Metal-Working Machinery.**

*Write us what you have, giving name of maker,  
age, condition, size, full specifications and price.*

**We don't bid on machines—please quote prices**

**W. F. Davis Machine Tool Company**  
32 N. Clinton St., Chicago, Ill.

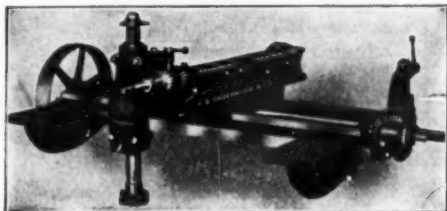
## **Can You Make Mauser Rifle Parts?**

**If you are in position to make  
machine parts for Mauser Rifles,  
model of 1893, we should be  
pleased to hear from you. Full  
information will be furnished.**

**Hitchcock, Stone & Co.**  
10 E. 43rd St., New York

# Portable Milling Machine

Underwood's Cuts Time in Two



**T**HIS EXCEPTIONALLY EFFICIENT and Handy Tool saves more time than almost any other portable tool we make. Having power feed in both directions, and usable in any position—horizontal, vertical or inclined—makes it possible to do a wide range of *repairing in place*.

It faces a valve seat 22x40x7 in., or does other milling of similar dimensions. Its rapid and accurate work gives universal satisfaction in railway and general repair shops. Operated by hand, small steam engine, air or electric motor. We can build to suit your special requirements.

For more than 45 years we have been building special labor saving machines and devices, and our force of experts is at your service. Our line of Portable Tools now includes:

Circular planer tools; radius planers; rotary planers; machines for truing eccentrics, facing domes, arms for facing cylinder flanges; rotary flue cleaners; armature and axle bearing borers; pipe benders; locomotive cylinder borers; crank pin turners; reflex water glass grinders; rail saws; motors, etc. Write for catalog.

**H. B. Underwood & Company**

1016-22 Buttonwood St., Philadelphia, Pa.



## Second-Hand Machinery.

Lists of Second-Hand Machinery, either for sale or wanted, set in uniform style, will be published under this heading at the rate of **40 cents a line**, across the page, each issue. Minimum charge, **\$4.00**. Sub-headings are counted as one line, but the name and address of advertiser are not included in the space charged for. No display in this department.

Write direct y to the parties offering the machines for sale for prices and full descriptions. If you do not find listed what you require, use the post card inclosed with each book to make known your wants to the publisher.

### FOR SALE BY

**Cincinnati Ball Crank Co.,** - - - **Oakley, Cincinnati, O.**

#### TURRET HAND SCREW MACHINE.

One Warner & Swasey turret hand screw machine, 1 $\frac{1}{2}$ " automatic chuck capacity, equipped with motor drive, 220 v., 1 $\frac{1}{2}$  h. p., variable speed control.

### FOR SALE BY

**P. Pettler & Son,** - - - **Beaver Falls, Pa.**

Hammer, 60-pound Bradley.  
Hammers, 80-pound Bradley, (2).  
Lathe, 20"x10" Israel Johnson, hollow spindle.  
Radial drill press, 3' arm, Bickford.

### FOR SALE BY

"Gas Engine," Care Hitchcock's Machine Tool List,  
**1220 Caxton Bldg.,** - - - **Chicago, Ill.**

#### GAS ENGINE.

One 60 h. p. Bruce Macbeth vertical 2-cylinder gas engine, in A-1 condition; bargain for quick sale.

### FOR SALE BY

**Girard Machine & Tool Co., 491-493 N. Third St., Philadelphia, Pa.**

#### LATHES.

18"x8' Sebastian, hollow spindle.	16"x6' Pratt & Whitney, taper att.
18"x8' Willetts, c. r.	16"x6' Porter, hollow spindle.
17"x8' Johnson, c. r.	16"x6' Lodge & Davis, hol. spindle.
16"x8' Johnson, solid spindle.	15"x6' Sebastian, r. f. r.
16"x8' Porter, hollow spindle.	14"x6' Porter, hollow spindle.
16"x6' Johnson, hollow spindle.	13"x5' Porter, r. f. r.

#### MISCELLANEOUS.

Boring mills, turret head vertical, 36" Brown & Sharpe, (2).  
Boring and turning mill, 7' Hilles & Jones.  
Broaching machine, No. 2 La Pointe.  
Hammer, steam drop, 600-lb. Bement, 6 $\frac{1}{2}$ " diam., 30" stroke.  
Milling machine, No. 1 Brainard back geared, plain, table 10"x44".  
Planer, 40"x40"x12' New Haven, with one head.  
Punch and shr., hvy., No. 4 Perkins, 30" throat, cap. 1" hole through 1" plate.  
Radial drill, 5' Prentice, belt drive.  
Shaper, 18" Cincinnati, double head, with two tables on 12' bed.  
Slab miller, 17"x8' Beaman & Smith, with two horizontal spindles.  
Turret and screw machines, large stock of various sizes and makes.

## SECOND-HAND MACHINERY

### FOR SALE BY

**W. F. Davis Machine Tool Co., 32 North Clinton St., Chicago, Ill.**

#### ENGINE LATHES.

36"x12' Blaisdell.  
28"x14' New Haven.  
24"x10' Putnam.

20"x10' Lodge & Davis.  
18"x6' Economic.  
14"x6' American.

#### TURRET LATHES.

18" Bardons & Oliver.  
16" Pratt & Whitney.  
12"x6' plain head chucking.

2"x24" Jones & Lamson, belt driven.  
2"x24" Jones & L., motor driven.  
16" American Fox turret.

#### PLANERS.

41"x41"x13' New Haven.  
30"x30"x8' Cincinnati.

24"x24"10' Sellers.  
24"x24"x6' Hamilton.

#### BORING AND TURNING MILLS.

72" Niles, 2 swivel heads.

42" Bullard, 1 swivel, 1 turret.

#### RADIAL DRILLS.

6' N.-B.-P., full universal, speed box, motor.  
4' Niles, cone driven, plain.

4' Bickford, plain, cone driven.  
36" Dreses, plain, cone driven.

#### UPRIGHT DRILLS.

28" Hamilton.  
26" Barnes.

22 1/2" Barnes.  
20" Barnes.

#### MULTIPLE SPINDLE DRILLS.

12-sp. Gardam, table 20"x24"-1" drills.  
24-sp. P. & W., table 24"x19"-1/2" drills.

6-sp. P. & W., old style, 1/2" drills.  
10-sp. P. & W., 4" circle-1/2" drills.

#### GRINDERS.

No. 3 B. & S. surface.  
"Willey" electric, tool post.  
20" Ransom, water tool.

No. 11 Landis, plain.  
"New Yankee", drill.  
No. 3, plain tool.

#### AUTOMATIC STUD MACHINES.

5-16" Staley.

#### BOLT CUTTERS.

2" Landis, double head.

#### KEYSEATERS.

Davis No. 1.

#### HORIZONTAL CYLINDER BORING MACHINES.

48"x12', with 4"x18' bar.

61"x18', with 6 1/2"x25' bar.

#### AIR COMPRESSORS.

10"x12" Curtis, double cylinder, belt driven.

#### PIPE THREADING MACHINES.

12" Bignall & Keeler.  
6" Bignall & Keeler.

4" Stoeber.

#### STEAM HAMMERS.

600 lb. Bement.  
800 lb. Morgan.

1500 lb. Morgan.

#### ALL STEEL POWER BRAKES.

10'x3-16" Dreis & Krupp.

#### POWER SLITTERS.

24" throat, with 27"x9' traveling table, motor driven.

#### PIPE BENDING MACHINES.

2" capacity, with 32"x60" table, motor driven.

#### PIPE COILING MACHINES.

6" to 10' circle coiling capacity, motor driven.

#### DUPLEX FLANGE SEATING MACHINES.

Hand power, single belt, geared head, 11 1/2" between centers.

#### DOUBLE END PIPE FLANGE JOINT FACING MACHINES.

3"x24", for facing both ends of flanged pipe at once.

#### PORTABLE HYDRAULIC PRESSES ON WHEELS.

200-ton Elmes, 5' between rails, 18" piston travel.

Our stock is constantly changing. Send us a list of what you want. Also quote us on what you have for sale.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Marshall & Huschart Machinery Company,**

**Chicago                      Indianapolis                      St. Louis**  
**17 S. Jefferson St.      334 N. Capitol Ave.      915 Chemical Bldg.**

#### BORING MILLS.

30" Bullard vertical. | 33" Niles car wheel borer.  
 72" Niles vertical, A-1 condition. | 48" swing car wheel borer.

#### DRILLING MACHINES.

12" Barr sensitive drill.  
 14" Henry & Wright high speed, b. b.  
 20" Mechanics friction.  
 21" Sibley & Ware, stationary head.  
 23" Rockford, sliding head, tapping.  
 23" Rockford single spindle manufacturers' drill.  
 26" Lodge & Davis, sliding head, back gear, power feed.  
 Four spindle 24" Barnes gang.  
 10-spindle Natco multiple, capacity ten 5-16" drills.  
 36" Gang plain radial.  
 36" Niles plain radial.  
 44" Alfred Box & Co. plain radial.

#### GEAR CUTTERS.

16" Bilgrim gear generator. | 50x10 Gould & E. spur gear cutter.  
 22" Gould & E., spur and bevel. | 4-sp. Norris multiple, semi-auto.

#### GRINDERS.

No. 6 Gardner disc grinder. | No. 6 Blount emery grinder.  
 No. 2 Partridge emery grinder. | No. 1 Cincinnati cutter grinder.

#### KEYSEATERS.

No. 2 Baker Bros. with 3 cutter bars, 17 cutters.  
 No. 2 LaPointe broaching machine.

#### ENGINE LATHES.

14"x6' LeBlond, q. c. g., taper att. | 20"x10' Rahn Mayer & Carpenter  
 17"x8' Bradford, raised to swing 20" | gap lathe.  
 compound rest, power cross feed. | 20"x10' Lathe & Morse, raised to  
 17"x8' Fitchburg, c. r., with chuck. | swing 26".  
 18"x8' Lodge & Davis. | 24"x14' Lodge & Davis, with chuck.  
 18"x10' Lodge & S., with qk. ch.grs. | 24"x16' New Haven.  
 18"x14' Lodge & Davis, c. r. and ck. | 30"x16' Harris.  
 18"x10' Rahn, Mayer & Carpenter | 36"x12' Niles.  
 gap lathe. | 36"x14' Putnam.

#### TURRET LATHES AND SCREW MACHINES.

18" Gisholt heavy turret.  
 21" Gisholt heavy turret.  
 No. 3 Garvin screw machine, 1 1/2" capacity.  
 1 1/2" Pratt & Whitney screw machine, with pump, pan and wire feed.  
 No. 2 1/2" Pratt & Whitney screw machine.  
 No. 1, 1 1/2" Hartford bench type automatic.  
 1 1/2" Cleveland automatic.  
 1 1/2" Acme screw machine, practically new.

#### MILLING MACHINES.

Lodge & Davis universal back geared.  
 No. 2 Beaman & Smith combined vertical and horizontal, table 24"x8'.

#### PIPE MACHINES.

No. 1 Williams, capacity 1/2" to 2". | 2" Murchey, with dies.  
 No. 304 Oster.

#### PLANERS.

22x22x5 Whitcomb, with chuck. | 24x24x6 McFarland & Nottingham.  
 22x22x5 Pond, parallel drive. | 24x24x5 Gray, excellent condition.

#### SHAPERS.

14" Jungst, crank. | 18" Lodge & D. grd., shifting belt.  
 16" Cincinnati, crank. | 26" American tri. grd., shifting belt.  
 16" Steptoe, crank. | 26" Walcott, shifting belt, actual  
 16" Barker & Chard, crank. | stroke 28".

#### MISCELLANEOUS.

Arbor press, No. 3 1/2 Greenard. | Hammer, steam, 800 lb. Bement-N.  
 Centering machine, 13" Whiton. | Nipple machine, No. 2 Detrick &  
 Hacksaw, No. 1 Q. & C. | Harvey, double head.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Federal Machinery Sales Company, 12 N. Jefferson St., Chicago**

Send for complete stock list and prices.

Drill, 20" W. F. & John Barnes, back geared, complete.  
 Drill, 4-spindle upright, 32" Quint, with sliding back gears.  
 Engine lathe, 13"x5' Blaisdell, 4-step cone and single back gears.  
 Engine lathe, 13"x5' Fay & Scott.  
 Engine lathe, 16"x8' Walcott & Wood, h. s., compound rest.  
 Engine lathe, 18"x8' American, late pattern, quick change gear, good as new.  
 Engine lathe, 18"x8' Schumacher, Boye & Emmes, standard, 3-step cone, double back gears, lathe pattern, good as new.  
 Engine lathe, 20"x10' Prentice, quick change gear, late pattern.  
 Engine lathe, 26"x12' Reed, standard, compound rest, hollow spindle.  
 Engine lathe, 24-42"x12' McCabe dbl. apdl., triple grd., into large face plate.  
 Hammer, upright helve, 25 lb. Bradley.  
 Keyseater, No. 3 Mitts & Merrill.  
 Miller, universal, No. 2 Garvin.  
 Miller, No. 3 Fox, combined hand and power feed.  
 Oil separator, power, 24" diameter, countershaft and pan, complete.  
 Press, No. 42 Bliss, open back, inclinable.  
 Press, geared power, No. 5 Bliss, solid back.  
 Press, power, No. 4 American Can, inclinable.  
 Screw machine, hand 4" Acme.  
 Shaper, plain crank, 15" Steptoe.  
 Shaper, crank, 24" Lutter & Gies, heavy duty, back geared.  
 Turret lathe, 15" Bardons & Oliver, plain head, 4" h. s.  
 Turret lathe, engine, geared, 12"x5' Fay & Scott.

### FOR SALE BY

**A. D. White Machinery Co., 108-114 N. Jefferson St., Chicago**

#### LATHES.

14"x6' Robbins.  
 16"x8' LeBlond.  
 16"x12' Beaman & Smith.

18"x8' Fitchburg.  
 28"x12' Fifeild.  
 30"x14' Blaisdell.

#### MILLING MACHINES AND SCREW MACHINES.

No. 3 Fox, hand and power fd., (2)  
 No. 26 Brainard plain miller.  
 No. 9 Kempsmith plain miller.  
 No. 24 Brown & Sharpe plain.  
 No. 5-C Becker-Brainard horiz.

5-16" Hartford automatic.  
 8" Cleveland semi-auto.  
 10" Pearson screw machine.  
 24" Hartford automatic.  
 18" American Fox monitor.

#### DRILL PRESSES.

14" Mechanics.  
 20" Barnes.  
 28" Barnes, sliding head.  
 29" Bickford, sliding head.  
 30" Kerkhoff, sliding head.  
 32" Bickford, sliding head.

34" Barnes.  
 72" Bickford plain radial.  
 72" Fosdick full universal radial.  
 6-spindle Fox sensitive.  
 8-spindle Valley City multiple.  
 12-spindle Baush multiple.

#### PUNCH PRESSES AND SHEARS.

No. 1 R. & K., o. b. i.  
 No. 1 Toledo, o. b. i.  
 No. 1 Consolidated, o. b. i.  
 No. 16 Wold.  
 Nos. 40 and 45 Crosby.  
 No. 64 Bliss, geared, double crank.  
 King power forcing press.

Lucas power forcing press.  
 Erie 100" sq. shear, cap. 3-16".  
 Niagara No. 242 & No. 152 power squaring shears.  
 No. 380 Toledo slitting shear.  
 Rock River rapid action punch.

#### MISCELLANEOUS.

Bolt cutters, 1 1/2 & 3" National, s. hd.  
 Boring machine, 42" Dawson.  
 Boring machine, Binsse, 34" bar.  
 Grinder, drill, Yankee Style "B".  
 Grinder, disc, 18" Ransom.  
 Grinders, tool, Oesterlein, (2).  
 Hammer, cush. helve, 60 lb. Bradley.  
 Keyseater, portable, 18" Morton.

Oil gas generator, No. 3 American.  
 Pipe machine, 2" Jarecki.  
 Planer, 24"x24"x10' Cincinnati.  
 Planer, 22"x32"x8' Betts.  
 Planer, 35"x35"x12' Niles, 2 heads.  
 Riveter, 3-16" Adt.  
 Shapers, 16", 18" and 24".  
 Tapper, No. 2 Garvin horizontal.

## SECOND-HAND MACHINERY.

### FOR SALE BY

**Prentiss Tool & Supply Co., New York, Boston, Buffalo, Syracuse.**

#### BORING MILLS.

- |                            |                                   |
|----------------------------|-----------------------------------|
| 36" Hornell, one head.     | 2-spindle Beaman & Smith horiz.   |
| 19' Pond, two heads.       | 5" bar Beaman & Smith horizontal. |
| No. 2-B Binsse horizontal. |                                   |

#### DRILLING MACHINES.

- |                               |                                |
|-------------------------------|--------------------------------|
| 3-spindle Henry & Wright.     | 20" Davis, b. g. & t. s.       |
| 3-spindle Woodward & Rogers.  | 30" Prentice Bros.             |
| 5-spindle Reed.               | 28" New Haven.                 |
| 4-spindle Barr.               | 5' American radial.            |
| 22" Aurora, sliding head.     | 4' Universal radial.           |
| 28" Cincinnati, sliding head. | 12-spindle Gardam, adjustable. |

#### GRINDERS.

- |                                 |                          |
|---------------------------------|--------------------------|
| No. 60 Heald, cylinder.         | 18" Gorton disc grinder. |
| No. 1 Brown & Sharpe, internal. | 3" Yankee, twist drill.  |
| 12" Bay State, piston ring.     |                          |

#### LATHES.

- |                         |                             |
|-------------------------|-----------------------------|
| 11"x5' Prentice Bros.   | 30"x8' Flather.             |
| 14"x6' Lodge & Shipley. | 24"x10' Porter.             |
| 14"x6' Bradford.        | 26"x16' Pond.               |
| 14"x6' Sebastian.       | 42"x16' Niles.              |
| 18"x8' Prentice Bros.   | 16"x6' automatic threading. |
| 20"x12' Bogart.         | No. 3 Stark bench lathe.    |

#### MILLING MACHINES.

- |                               |                              |
|-------------------------------|------------------------------|
| No. 24 Brown & Sharpe, plain. | No. 6 Whitney, hand.         |
| No. 1 1/2 Garvin, plain.      | No. 2 Cincinnati, universal. |
| No. 1 Brown & Sharpe, plain.  | No. 1 Van Norman, duplex.    |
| No. 3 Kempsmith, plain.       | No. 2 Becker, vertical.      |

#### PLANERS.

- |                       |                     |
|-----------------------|---------------------|
| 30"x30"x8' Gray.      | 52"x42"x12' Powell. |
| 36"x36"x10' Lawrence. | 24"x24"x 6' Pease.  |

#### PRESSES.

- |                             |                |
|-----------------------------|----------------|
| P-2 Ferracute press.        | No. 52 V. & O. |
| No. 5 Mossberg & Granville. | No. 4 V. & O.  |

#### PUNCHES AND SHEARS.

- |                              |              |
|------------------------------|--------------|
| 30" Niagara, power squaring. | 42" Perkins. |
| 25" Weiss & Koss.            | 18" Perkins. |

#### SAWS.

- |                 |                        |
|-----------------|------------------------|
| 4" Espen-Lucas. | No. 1-M, Q. & C.       |
| No. 17 Higley.  | Robertson, power hack. |

#### SHAPERS.

- |                        |                    |
|------------------------|--------------------|
| 16" Gould & Eberhardt. | 24" Hendey.        |
| 14" Prentiss.          | 28" Smith & Mills. |
| 16" Stockbridge.       |                    |

#### SCREW MACHINES.

- |                                |                     |
|--------------------------------|---------------------|
| No. 2, 1" Bardons & Oliver.    | 20"x8' Fay & Scott. |
| No. 1, 13-16" Badons & Oliver. | 1 1/2" Cleveland.   |
| 2"x24" Jones & Lamson.         | 1 1/2" Cleveland.   |
| 13" Gisholt.                   | 1" National-Acme.   |

#### MISCELLANEOUS.

- |                                    |                              |
|------------------------------------|------------------------------|
| Air compressor, 8"x8" American.    | Bulldozer, No. 1 Rock River. |
| Balancing machine, 44" Norton.     | Keyseater, No. 0 Baker Bros. |
| Blower, pressure, No. 4 American.  | Keyseater, No. 1 Davis.      |
| Bolt cutter, 1 1/2" Acme.          | Tapper, 4" Baker Bros.       |
| Broaching machine, No. 2 LaPointe. | Threading machine, 8" Pratt. |

## SECOND-HAND MACHINERY

### FOR SALE BY

**Cyril J. Bath, Mch. Merchant, 340 Leader News Bldg., Cleveland, O.**

For delivery when advertised—other tools available.

Automatic, 8 $\frac{1}{2}$ "x16" Potter & Johnston, first-class.  
Boring machine, horizontal, 5 $\frac{1}{2}$ " bar Bement-Miles, first-class.  
Drill, 4 spindle Foote-Burt hi-speed, first-class.  
Forge drilling machines, heavy, Niles, (several).  
Forging machines, 14" Ajax, with rivet attachments, (2).  
Gear shaper, 24" Fellows, very good.  
Grinder, cylinder, No. 60 Heald, late model, A-1.  
Hammer, steam drop, 1,000-lb. Lane, good.  
Lathe, plain turning, 24"x25" American.  
Running balance machine, Norton, almost new.

### FOR SALE BY

**Neidow & Payson,**

**9 So. Clinton St., Chicago, Ill.**

Automatic, 4" National-Acme.  
Automatic, 4" Hartford.  
Automatic, 4" Cleveland.  
Automatic, 14" Cleveland.  
Automatic, 24" Cleveland.  
Brake, 8" Chicago, 14 ga.  
Drill, 24" Barnes.  
Drill, 28" Barnes.  
Drill, No. F Baker.  
Gas engine, 65 h. p.  
Gear hobber, 18" Grant Lees.  
Lathe, 16"x12" Reed.  
Lathe, 18"x8" Davis.

Lathe, 18"x8" Peerless, new.  
Lathe, 24"x12" New Haven.  
Lathe, 24"x21" Mueller.  
Lathe, 60"x15" New Haven.  
Miller, univ., No. 2 Cincinnati.  
Miller, Lincoln, No. 2 P. & W.  
Planer, 40"x12" New Haven.  
Press, No. 0, R. & K.  
Press, hydraulic, 100 ton, 11".  
Punch and riveter, 36" Rock River.  
Punch and shear comb., Lenox.  
Radial drill, 5" Niles.  
Shear, gate, 6" Cincinnati, 18" gap.

### FOR SALE BY

**E. L. Easley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.**

#### GRINDERS.

18" No. 7 Besly, double disc.  
24" Leland-F., double wet tool, (2).  
26" No. 1 Diamond automatic, face.

1-sp. Davis & Egan cock grinder.  
No. 60 Heald, cylinder, fine order.  
6-sp. Milwaukee cock grinders, (2).

#### SCREW MACHINES.

4-4" Cleveland automatic.  
4" National-Acme 4 sp. automatic.  
14" Hartford automatic.

4" Cleveland automatic, (2).  
15-16" Cleveland automatic.  
2" Cleveland automatic.

#### MISCELLANEOUS.

Bending roll, power, 6" Niles.  
Bolt cutter, 14" Acme, double head.  
Bolt cutter, 14" No. 34 Wells, single.  
Boring machine, No. 1 Lucas horiz.  
Boring mche., 3 $\frac{1}{2}$ " bar Newark hor.  
Boring mills, 60" Baush, (2).  
Boring mill, 60" Colburn.  
Boring mill, 10" Betts.  
Brake, 8" Keene, hand power.  
Centering mche., 1-sp., 5 $\frac{1}{2}$ " Whiton.  
Centering mche., 2-sp., 8" P. & W.  
Drill, 2-sp. gang, 20" Mechanics.  
Forming roll, power, 98" Bertsch.  
Gear cutter, 20" Grant-Lees.  
Gear cutter, 36"x9" G. & E. auto.  
Gear cutter, bevel, 36" Brainerd.  
Gear shaper, 36" Fellows.  
Hammer, helve, 40 lb. Bradley.  
Hammer, steam, 800 lb. Morgan, s.f.

Keyseaters, No. 2 Mitts & M., (2).  
Miller, No. 12 Brown & S. pl., (2).  
Miller, No. 14 Hendey universal.  
Miller, No. 5-B Becker hor., plain.  
Miller, keyseat, No. 3 Mitts & M.  
Oil separator, No. 1 American.  
Pipe machine, 2" No. 2 Bignall & K.  
Pipe machine, 6" No. 64 Merrell.  
Planer, 30"x30"x14" American, 2 hds.  
Planer, 42"x42"x8" Niles, 3 hds.  
Planer, 44"x44"x12" L.W. Pond 3 hds.  
Press, 150 ton hydraulic wheel press.  
Punch press, No. 164A Consolidated.  
3 $\frac{1}{2}$ " st., geared.  
Radial drills, 2 $\frac{1}{2}$ " to 5", (8).  
Sprocket turning and boring machine combined, Baker Bros.  
Sprue cutter, 10" Adt, power.  
Wire c-o. & s. mach., 3-16" Shuster.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Mchry. Department, The W. M. Pattison Supply Co., Cleveland, O.**

Second Hand Machinery for immediate delivery.

#### LATHES.

- |   |                                       |
|---|---------------------------------------|
| 14"x6' Blaisdell, elevating rest.             | 18"x8' Powell, plain rest.            |
| 14"x6' Porter, plain rest.                    | 20"x8' Pratt & W., swivel rest, t. a. |
| 15"x6' Pond, elevating rest.                  | 22"x8' Star, compound rest.           |
| 15"x6' Perkins, elevating rest.               | 22"x12' Walcott, plain rest.          |
| 16"x6' Prentiss, compound rest.               | 24"x12' Star, compound rest.          |
| 16"x6' Blaisdell, elevating rest.             | 24"x14' New Haven, compound rest.     |
| 16"x6' Pratt & Whitney, elevating rest, t. a. | 26"x12' New Haven, compound rest.     |
| 16"x6' Flather, plain rest.                   | 30"x12' Pond, c. r., motor bracket.   |
| 16"x8' Lodge & Davis, plain rest.             | 32"x16' New Haven, compound rest.     |
|   | 36"x14' Pond, c. r., motor bracket.   |

#### PLANERS.

- 16x16x4' Pratt & Whitney planer, with one head on rail.  
 18x18x4' Pratt & Whitney planer, with one head on rail.  
 24x24x6' G. A. Gray planer, with one head on rail.  
 24x24x6' Smith & Silk planer, with one head on rail.  
 32x48x8' New Haven planer, with one head on rail.  
 36x36x8' Putnam planer, with one head on rail.

#### SHAPERS.

- |   |                                      |
|---|--------------------------------------|
| 6" stroke Pratt & Whitney, crank.         | 16" stroke Smith & Mills, crank.     |
| 10" stroke Pratt & Whitney, crank.        | 16" stroke Smith & M., b. g. crank.  |
| 14" stroke Pratt & Whitney, crank.        | 16" stroke Gould & E., b. g. crank.  |
| 15" str. Hendey fric. grd. pillar shaper. | 20" str. Hendey fric. pillar shaper. |
| 15" stroke Springfield, crank.            | 24" stroke Morton draw-cut shaper.   |
| 16" str. Cincinnati, back grd. crank.     | 26" stroke Cincinnati, triple-gear.  |

#### DRILLING MACHINES.

- |   |   |
|---|---|
| 20" Prentice Bros., wheel & lever fd.   | 3-sp. 14" Fox Machine Co. sensitive.                                |
| 20" Rockford, wheel and lever feed.     | 3-sp. 14" Woodward & R. sensitive.                                  |
| 20" Barnes, wheel and lever feed.       | 3-sp. 14" Dwight-Slate sensitive.                                   |
| 20" Silver.                             | 6-sp. heavy pattern Hendey.   |
| 26" Barnes, sliding head, b. g., p. f.  | 8-sp. Western Tool Works multiple spindle, capacity 18" circle.     |
| 34" Bickford, sliding hd., b. g., p. f. | No. 12 Pratt & Whitney 10-spindle multiple, rectangular head 9x18". |
| 3' arm Fosdick radial.                  |   |
| 5' arm Putnam radial.                   |   |
| 2-sp. 14" Wm. Gardam sensitive.         |   |

#### BORING MILLS.

- 42" Bullard vertical, with 2 swivel heads and plain table.  
 42" Bullard vertical, with 2 swivel heads and 3-jaw chuck in table.  
 44" Bement car wheel boring mill.

#### SCREW MACHINES.

- 2" cap. Moline, with plain hd., auto. chuck, w. fd., pan, pump, lot of collets.

#### MILLING MACHINES.

- |                                  |                                      |
|----------------------------------|--------------------------------------|
| No. 2 Grant, "Lincoln" pattern.  | No. 2 Cincinnati, plain back geared. |
| No. 60 Owen, plain.              | No. 3 Cincinnati, plain back geared. |
| No. 1 Grand Rapids, back geared. |                                      |

#### POWER PRESSES.

- |                                    |                                   |
|------------------------------------|-----------------------------------|
| No. 2 Consolidated, open back inc. | No. 3 Perkins, open back, geared. |
| 31-P Danielson punch press.        | No. 7 Perkins, open back.         |
| No. 40 Waterbury, open back inc.   |                                   |

#### GRINDERS.

- |                                |                                   |
|--------------------------------|-----------------------------------|
| No. 60 Heald cylinder grinder. | No. 1 10x36 Landis plain grinder. |
|--------------------------------|-----------------------------------|

#### GEAR CUTTERS.

- |                                   |                                    |
|-----------------------------------|------------------------------------|
| 15" Gleason bevel gear generator. | 34" Becker-Brainard, spur & bevel. |
|-----------------------------------|------------------------------------|

#### HAMMERS.

- |                                     |  |
|-------------------------------------|--|
| 40-lb. Bradley, cushion helve.      | 350-lb. Massillon, single-frame steam. |
| 350-lb. Bement, single-frame steam. |  |

#### MISCELLANEOUS.

- |  |  |
|--|--|
| Keyseater, No. 1 Davis.                          | Profiling mch., agl.-sp. No. 3 Garvin.                         |
| Keyseater, No. 2 Baker Bros.                     | Pipe and nipple threading machine, double head, No. 2 Murchey. |
| Oil fuel furnace, No. 66 Frankfort, with blower. | Pipe and nipple threading machine, No. 2 Landis.               |
| Profiling mch., 2-sp. No. 2 Garvin.              |  |

## SECOND-HAND MACHINERY

### FOR SALE BY

**The Machinery Warehouse, 3705 S. Ashland Ave., Chicago, Ill.**

15" Gould & Eberhardt.	SHAPERS.	16" Lodge & Davis.
32"x32"x9' New Haven, 1 head.	PLANERS.	54"x54"x21' Sellers, 3 heads.
36"x36"x16' Sellers, 1 head.	LATHES.	56"x44"x17' Gray, 2 heads.
15"x5' Porter.		20"x8' Putnam.
15"x8' Reed.		21"x10' Lodge & Davis.
16"x6' Ames.		22"x12' Fitchburg.
18"x6' Lodge & Davis.		28"x16' Prentice.

All the above tools are in guaranteed condition. Lathes have hollow spindles, compound rests and full equipment.

### FOR SALE BY

**W. L. Perkins, Jr.,**

**30 Church St., New York**

24"x10' Putnam, c. r., cross feed.	LATHES.	32"x10' Putnam, c. r., cross feed.
26"x14' Putnam, c. r., cross feed.		70" Sellers d. h. wheel lathe.
28"x14' Putnam, c. r., cross feed.		80" Bement d. h. wheel lathe.
30"x30"x10' Chandlers, 2 heads.	PLANERS.	60"x60"x14' Sellers, 2 heads.
32"x32"x8' Pond, 2 heads.		72"x72"x34' Sellers, 4 heads.
36"x36"x10' Woodward & P., 2 hds.	BORING MILLS.	84" Sellers, 1 head.
30" Bullard vertical, turret head.		90" Pond, double head.
34" Colburn vertical, turret head.		96" Niles, double head.
60" Binsse, horizontal.	MISCELLANEOUS.	Radial, 5' Dreses, tapping.
Drill, 16" spindle Baush multiple spindle.		Radial, 5' Pond, tapping.
Gear cutter, 15" Becker-Brainard.		Radial, 6' Bickford, tapping.
Gear shaper, 36" Fellows.		Radial, 7' Baush, tapping.
Grinder, univ., No. 2 Bath.		Radial, 8' Pond, tapping.

### FOR SALE BY

**J. L. Osgood,**

**45 Pearl St., Buffalo, N. Y.**

Automatic turret mch., 24" Gridley.	Miller, hand, No. 3 Garvin.
Automatic, 84"x16" Potter & J.	Miller, plain, Carter & H., 17" fd.
Bolt cutter, double, 2" Landis.	Miller, horizontal, No. 3 Carter & Hakes, vertical attachment.
Bolt head shaver, 4-sp. Nat-Acme.	Miller, vertical, No. 5 B. & S.
Boring mill, 42" Bullard, rapid production.	Miller, vertical, No. 15 Garvin.
Cutting-off machine, 2" Hurlbut & Rogers, motor drive.	Miller, Lincoln, Bement.
Drills, high speed, Allen, ball b., (3).	Miller, Lincoln, Carter & Hakes.
Drill, 20", screw and lever.	Pipe machine, No. 7 Jarecki.
Drills, 30", b. g., p. f., (3).	Piston ring mch., Gridley auto.
Drill, 4 spindle Slate.	Planer, 30"x8' Flather.
Drill, Baker, heavy duty, 3" cap.	Press, pwr., Dodge 24" wheel, 1" throw
Grinders, pl., 12x36 and 42" Landis.	Screw machine, No. 1 B. & O.
Grinder, cylinder, No. 60 Heald.	Screw machine, No. 2 B. & O.
Hammer, drop, 600-lb. Merrill.	Screw machine, No. 4 B. & O.
Hammer, steam, 1500 lb. Bement.	Screw machine, No. 1 Warner & S.
Lathe, 11"x8' Reed, (6).	Screw machine, 24" Gridley, single
Lathe, 15"x6' Flather.	spdl., auto. piston ring attach.
Lathe, 16"x8' Porter.	Shaper, 14" Walcott.
Lathe, 18"x6' Blaisdell, taper.	Shaper, 15" Hendey.
Lathe, 18"x8' Rahn & Mayer.	Tapper, horizontal, 5-16" Garvin.
Lathe, 26"x30' Fitchburg.	Turret lathe, No. 1 P. & W.
Miller, hand, Chicago.	Turret, 24" Gisholt, 5" hole.
	Wood turn'g lathe, 17"x10' wood bed.



## SECOND-HAND MACHINERY

### FOR SALE BY

**Niles-Bement-Pond Company.** 111 Broadway, New York.  
Located at Chicago, Boston and New York.

#### LATHES.

12"x 5' speed lathe.	40"x16' Bement, c. r., old style.
13"x 6' P. & W., taper, old style.	36" Niles pulley lathe.
16"x 7' P. & W., taper, old style.	44" P. & W. pulley lathe.
16"x 8' P. & W., r. & l., old style.	30' pit lathe, 220 v. motors.
30"x22' LeBlond, comp. rest.	

#### AUTOMATIC SCREW MACHINES.

1/2" Hartford auto. stud machine.	5-16" Hartford 2-spindle automatic.
1/2" Acme old style 4-sp. automatic.	1/2" Spencer single turret, auto.

#### BORING MACHINES.

36" Brown & Sharpe turret borer.  
84" Niles, 2 heads.  
96" Niles, 2 heads.  
10' Niles, heavy pat., 220 v. motors.  
10'-16' Betts, extension, 220 v., d. c., motor drive.  
32" bar Bement horizontal, 8' table.  
60" Niles Corliss cylinder borer, 220 v. motors.

#### SHAPERS AND SLOTTERS.

10" Miles old-style shaper.	30" Morton draw cut shaper.
12" Bement old-style shaper.	12" Bement slotter.
15" P. & W., crank.	20" Niles slotter.
16" Rockford, back geared.	24" Niles geared slotter.
20" Hendey, friction.	

#### PLANERS.

22"x22"x 6' Harrington hd. planer.	30"x30"x 8' Whitcomb, 1 head.
24"x24"x 6' Woodward & P.	30"x30"x11' Niles, 1 head.
26"x26"x 7' Niles, 1 head.	14"x12"x32' Niles, 4 heads, 220 volts,
26"x23"x16' Miles, 2 heads.	d. c. motors.
30"x30"x 6' Pond, 1 head.	

#### DRILLING MACHINES.

13" 1 spindle sensitive, 110 v. motor.  
17" 4 spindle gang, Jones & Lamson.  
20" W. & L. plain.  
30" & 36" Gould & Eberhardt, sliding head.  
No. 14 Pratt & Whitney multiple, 1" capacity.  
No. 10 Pratt & Whitney multiple, 1 1/2" capacity, 10 spindles.  
No. 1 Pawling & H. horizontal, belt drive.  
No. 3 Pawling & H. horizontal, 220 v., d. c., motor drive.  
Dallet and Prentice portable drills.

#### RADIALS.

24' Grant, semi-radial.	5' Niles, universal.
4' Barr, old-style.	6' Pond, heavy.
4' Niles, plain.	6' Niles, semi-universal.
5' Niles, plain.	7' Niles, universal.
5' Pond, 220 v., d. c., motor drive	

#### RAILROAD MACHINERY.

79" Pond driving wheel lathe.	Bement car wheel lathe.
Bement double axle lathe.	Niles hvy. car wheel lathe, like new.
Niles double axle lathe.	

#### MISCELLANEOUS.

Bolt cutter, 1 1/2" Landis.	Miller, plain, No. 2 Owen.
Bolt cutter, 2 1/2" National.	Motor, 3 to 1 variable speed, 20 h. p.
Bolt cutter, 4" Acme.	General Electric, 220 v., d.
Cut-off machine, 4 1/2" Starr.	Motor, 160 h. p. Westinghouse, 220
Gear cutter, 24" Newark, spur gears.	v., d. c., 625 r. p. m.
Grinder, 12"x36" Springfield.	Pipe machine, 8" Cox.
Grinder, auto., for saw blades.	Rolls, 5"x8" hand power.
Grindstone, 34", iron frame.	Saw bench, 54"x34, tilting top.
Hack saw, Millers Falls.	Saw, Higley cold, 7" capacity.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Russell Machine Co.,**

**28th Street & A. V. R. R., Pittsburgh, Pa.  
SHAPERS.**

- |                                  |                                    |
|----------------------------------|------------------------------------|
| 10" traveling head.              | 20" Barker & Chard, single geared. |
| 12" New Haven, crank.            | 24" Hendey.                        |
| 14" Walcott.                     | 24" Lodge & Davis.                 |
| 14" Lodge & Davis.               | 24" Gould & Eberhardt.             |
| 14" Smith-Mills.                 | 26" Hendey.                        |
| 14" Steptoe.                     | 26" Gould & Eberhardt.             |
| 16" Gould & Eberhardt, sgl. grd. | 28" Juengst.                       |
| 20" Gould & Eberhardt, geared.   | 30" Lodge & Davis.                 |

### PLANERS.

- |                        |                        |
|------------------------|------------------------|
| 19"x16"x3' New Haven.  | 26"x26"x6' Putnam.     |
| 20"x20"x5' New Haven.  | 26"x26"x7' Pond.       |
| 22"x22"x5' New Haven.  | 30"x30"x6' 10" Powell. |
| 22"x22"x5' New Haven.  | 57"x57"x17' Sellers.   |
| 24"x24"x8' 3" Flather. |                        |

### HAMMERS.

- |  |                                  |
|--|----------------------------------|
| 350 lbs. Pittsburgh, shear knife, steam, single frame. | 40 lbs. Bradley, wooden helve.   |
| 600 lbs. Bement, steam, sgl. frame                     | 80 lbs. Bradley, wooden helve.   |
| 1200 lbs. Morgan, steam, sgl. frame.                   | 125 lbs. Bradley, upright strap. |

### MISCELLANEOUS.

- |   |                          |
|---|--------------------------|
| Boring mill, vertical, 36" Bridgeport, single head. | Milling machine, Garvin. |
| Boring mill, vert., 72" Bickford, 2 hds.            | Milling machine, Newton. |

### FOR SALE BY

**Strong & Hery Co.,**

**201 State St., Rochester, N. Y.**

These machine tools are in stock.

### LATHES.

- |   |   |
|---|---|
| 14x6 Hendey, q. c., c. r., h. s., taper attach., drawn-in attach. with collets, 2 chucks, good condition. | 18x8 Porter, h. s., c. r., p. c.  |
| 16x6 Porter, p. c., c. r., h. s., blocked to 20", good condition.   | 18x8 Boye & Emmes, h. s., c. r., p. c., extra turret mounted on carriage. |
| 16x6 Lodge & S., grd. hd., h. s., c. r.   | 20x10 Porter, h. s., c. r., p. c.   |
| 16x6 South Bend, h. s., c. r., p. c., new.  | 24" Davis turret lathe, power cross feed to turret, new.                  |
| 18x8 Lodge & Shipley, all-geared hd.  | 26x18 Gleason, s. s., p. c., c. r.  |

### MISCELLANEOUS.

- |   |   |
|---|---|
| Boring mill, 24x7 No. 3 Binsse, no power cross feed.                  | Grinder, double disc, 20" Gardner.                                |
| Boring mill, 10" dbl. hd., vert. & hor. fd.                           | Grinder, cylindrical, 7x48 P. & W.                                |
| Cutting-off machine, 3" Davis.  | Miller, plain, No. 2 Brown & S.                                   |
| Drill, sensitive, 3-sp. Reed.   | Miller, vertical, No. 3 Brown & Sharpe, arranged for motor drive. |
| Drills, 10" Barnes, sens. friction, (4).                              | Miller, hand, No. 10 Pratt & Whitney, arranged for motor drive.   |
| Drill, 20" Davis, b. g., self feed, sq. base, good condition.         | Planer, 30x30x8 Wilson, heavy type, 1 head, elevating device.     |
| Drill, 25" Barnes, b. g., self fd., sq. base.                         | Punch presses, No. 20 Bliss, with guards, same as new, (3).       |
| Drills, 2-spindle Barr, (2).  | Punch pulley, 24x64 Perkins, 45" fly wheel, 64" face, new.        |
| Drill, 2-spindle No. 1 Avey, ball bearing, high speed, same as new.   | Radial drill, 34" Morris, cone driven.                            |
| Drills, 2-sp. No. 2 Avey, ball bearing, high speed, same as new, (2). | Screw machine, automatic, No. 53 Acme, 4-spindle, cap, 1".        |
| Drills, 4-sp. No. 2 Avey, ball bearing, high speed, same as new, (3). | Shaper, 14" Steptoe, plain.                                       |
| Drills, 4-spindle Kern, high speed, ball bearing, new, (2).           | Shaper, 14" Hendey, arranged for motor drive.                     |
| Drills, 4-sp. Barr, fine condition, (2).                              | Shaper, 16" G. & E., b. g., fine cond.                            |
| Gear cutter, bevel and spur, 36" Becker-Brainard automatic.           | Shaper, 24" Gould & Eberhardt.                                    |

The above list is but a small proportion of our entire stock of both new and used machines. Send for complete list, descriptions and prices. Advise us concerning your requirements.

## SECOND-HAND MACHINERY

### FOR SALE BY

**The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.**

#### ENGINE LATHES.

- |                                   |  |
|-----------------------------------|--|
| 14"x6' Blaisdell, c. r.           | 26"x10' Barker & Chard, c. r., h. s.         |
| 14"x6' LeBlond.                   | 14"x6' Ames, r. & f. rest.                   |
| 18"x10' Dietz, Schumacher & Boye, | 15"x6' O. & S., c. r., 3-step cone, d. b. g. |
| c. r., h. s.                      | 22"x14' Dietz & Gang, c. r., h. s.           |
| 18"x8' Prentice, c. r., h. s.     | 36"x16' Fifield, c. r., s. s.                |

#### FOX LATHES.

- |   |                                   |
|---|-----------------------------------|
| 14"x6', square arbor, set-over tail-stock, (2). | 18" Springfield, set-over turret. |
|   | 20" American, universal turret.   |

#### TURRET LATHES.

- 18" Lodge & Davis, g. f. hd., automatic chuck.

#### MILLING MACHINES.

- |                                    |   |
|------------------------------------|---|
| Garvin hand miller.                | No. 5 Becker-Brainard vertical, with circular milling attachment. |
| 24"x6"x18 Oesterlein, pl. b. g.    |   |
| No. 12 Brown & Sharpe, plain, (2). |   |

#### UPRIGHT DRILLS.

- |                                     |  |
|-------------------------------------|--|
| Sensitive drills, (6).              | 20" b. g. & p. f., s. b., (4).                           |
| 20", w. & l. fd., s. b., (4).       | 21" Kokomo high-speed, bronze bushed b. g. & p. f., (5). |
| 24" sliding hd., b. g., p. f., (3). |  |

#### MULTIPLE DRILLS.

- |                                    |   |
|------------------------------------|---|
| Baush 12-spindle, 1" capacity.     | Pratt & Whitney, 12-spindle.            |
| 3, 4 and 6-spindle sensitive, (3). | 5 spdl. Detroit horiz., semi-auto. (2). |

#### GEAR CUTTERS.

- |                          |                                    |
|--------------------------|------------------------------------|
| 24" Fellows gear shaper. | 24" Gould & Eberhardt, auto. spur. |
|--------------------------|------------------------------------|

#### PLANERS.

- |                        |                     |
|------------------------|---------------------|
| 24"x24"x5' Pond, spur. | 24"x24"x6' Wheeler. |
| 26"x26"x6' Kidd, spur. |                     |

#### PRESSES.

- |                              |                               |
|------------------------------|-------------------------------|
| D-2 Ferracute, dble. acting. | No. 205 Toledo, double crank. |
|------------------------------|-------------------------------|

#### BORING MILLS.

- |                                      |                                       |
|--------------------------------------|---------------------------------------|
| 60" Industrial, sgle. hd., vertical. | 36" Barrett, horizontal, with 5" bar. |
|--------------------------------------|---------------------------------------|

#### GRINDERS.

- |                                     |                                   |
|-------------------------------------|-----------------------------------|
| Warner & Swasey cock grinders, (2). | 14", 20" & 30" wet grinders, (3). |
|-------------------------------------|-----------------------------------|

#### BOLT CUTTERS.

- |                         |                        |
|-------------------------|------------------------|
| 2" Acme, single head.   | 24" Acme, single head. |
| 14" Wells, single head. |                        |

#### SHAPERS

- |                                  |                          |
|----------------------------------|--------------------------|
| 6" Pratt & Whitney, plain crank. | 20" Hendey, friction.    |
| 15" Walcott, friction.           | 24" Hendey, friction.    |
| 16" Smith & Mills, b. g.         | 28" Smith & Mills, t. g. |
| 16" Smith & Silk, plain crank.   |                          |

#### SAWS

- |                         |                                     |
|-------------------------|-------------------------------------|
| No. 11 Higley cold saw. | No. 20 Lea-Simplex metal saw (new). |
| 8" No. 6 Cochrane-Bly.  |                                     |
| 12" Burke cold saw.     |                                     |

#### SCREW MACHINES.

- |                                  |   |
|----------------------------------|---|
| 1" Hartford automatic.           | 2" Hartford automatic.                          |
| 14" Cleveland automatic, 3-hole. | 1" Dreses, plain head, hand feed, a. c. & w. f. |
| 14" Cleveland automatic, 5-hole. |   |

#### KEYSEATERS.

- |                        |   |
|------------------------|---|
| No. 2 Mitts & Merrill. | No. 3 Mitts & Merrill.                  |
| No. 00 Colburn, (2).   | No. 0 Colburn, (Baker) keyseaters, (2). |
| Morton draw stroke.    |   |

#### MISCELLANEOUS.

- |  |  |
|--|--|
| Bending roll, 8"x18" Bertsch, heavy, triple geared.  | Pulley lathe, 36" Stevens, with boring attachment. |
| Drill, heavy duty, 24" Baker Bros.   | Radial drill, swing arm, 6' arm                    |
| Grinder, planer type, 16"x50" Springfield.   | Cleveland P. & S. Works.                           |
| Lathe, 26"x9" Reed, with hex. turret on carriage, taper attachment, 3-step cone, friction back geared. | Shear, heavy plate splitting for 4" plates.        |
| Slab miller, 24"x6' Ingersoll.   | Shear, gang slitting, Ames, with cutters.          |

## SECOND-HAND MACHINERY

### FOR SALE BY

**Broadway Machinery Co., 236-238 Broadway, Cincinnati, Ohio**

#### LATHES.

15"x 6' American, compound rest.  
15"x 6' Sebastian (6 new).  
18"x 8' Lodge Davis, taper attach.  
18"x 8' LeBlond, dbl. b. g., q. c.  
21"x 10' Lodge & Davis, c. r.  
20"x 14' Gray, c. r.  
24"x 16' Blaisdell, c. r.  
30"-50" and 68" swing lathes.

#### MILLING MACHINES.

Niles vertical, 32" table.  
No. 2 Davis & Egan, b. g. plain.  
No. 1 Cincinnati, plain.  
No. 2 Kempsmith, plain.

#### GRINDERS.

Bath, working surface table 6x36".  
12" Morris, wet emery.  
Heald, twist drill.  
Norton, heavy, 14" spindle.

#### MISCELLANEOUS.

24' Drees Mueller radial, keyseaters, drills, planers, shapers, punch and stamping presses, shears, boring mills, etc.

### FOR SALE BY

**Peninsular Machinery Co., 110 Beaubien St., Detroit, Mich.**

Beading machines, hand and power.  
Boring mch., Bement-Miles horiz.  
Centering machine, Phoenix.  
Cutter grinder, No. 1 Garvin.  
Die miller, Thurston.  
Drill, 31" B. F. Barnes, sliding hd.  
Drill, Allen sensitive.  
Drill, 3-spindle Leland.  
Drill, 4-spindle Bickford, heavy adjustable heads.  
Drill grinder, New Yankee.  
Gear cutters, Gleason.  
Grinder, Cochrane-Bly auto. saw.  
Grinder, Heald piston ring, chuck.  
Hack saw, Milford.  
Keyseater, No. 2 Mitts & Merrill.  
Keyseater, No. 2 Baker Bros.  
Key lathe, 12" Cobb, double end.  
Lathe, 14"x8' Fay & Scott, c. r.  
Lathe, 14"x6' Fairbanks, c. r.  
Lathe, 14"x6' Reed, c. r., taper.  
Oil separator, American.  
Planer, 24"x24"x6' Gray, single hd.  
Polishing lathes, all sizes.  
Press, No. 7 Perkins model A.  
Press, No. 5 Perkins.  
Rolls, hand power, 48" P. S. & W.

### FOR SALE BY

**McCoy-Brandt Machinery Co., 410 House Bldg., Pittsburgh, Pa.**

#### LATHES AND TURRETS.

13"x6' Pratt & W., plain rest, h. s.  
15"x8' Johnson, compound rest.  
16"x8' Davis, plain rest, h. s.  
16"x8' Blaisdell, comp. rest, h. s.  
17"x6' Prentice, plain rest, h. s.  
20"x8' Porter, plain rest.  
21"x10' Blaisdell, comp. rest, h. s.  
24"x16' Union, compound rest.  
26"x16' Schumacher & B., q. c., t. a.  
28"x18' Niles, comp. rest, t. a.  
3" Cleveland auto. screw machine.  
No. 4 J. & L. turret, 3" h. s.  
Blount turret, 3" h. s.  
Springfield turret, 15-16" h. s., chasing bar.

#### MISCELLANEOUS.

Bending rolls, 12' & 24' cap. 4" plate.  
Bending rolls, 6' & 10' cap. 4" plate.  
Boilers, 250 h.p., B. & W., stokers, (2).  
Boilers, 100 h.p., Erie Economic, (2).  
Boilers, 40 & 150 h.p. return tubular.  
Bulldozers, Nos. 1, 2, 4, 5 and 12.  
Compressors, belted, 4x6.5x6, 10x10".  
Cranes, hand, column, 35' arm, (3).  
Cranes, trav., 10 ton, 40' span, 220 v.  
Crane, trav., 15 ton, 48' span, 220 v.  
Crane, trav., 60 ton, 60' span, 220 v.  
Gang punch, 36" bet. housings, 8000 lb.  
Hammer, board drop, 5000 lb. Toledo.  
Loco. crane, 10 ton, 35' beam, stand. ga.  
Loco. crane, 15 ton, drag line and shovel equipment.  
Motor, 225 h. p., 2-p., 25-cy., 440 v.  
Pipe mchs., 8" E. C. & B., 12" Jarecki.  
Press, o. b. i., No. 6 or 6 1/2 Toledo, 4" str.  
Punch and shear, 15", 42" throats, cap. 1x1".  
Punch and shear, dbl., No. 7 L. & A.  
Rolls, angle, 18" rolls, 8" diam.  
Rolls, plate and beveling, 44, 48 & 50".

Available for immediate shipment.

## SECOND-HAND MACHINERY

### FOR SALE BY

**The H. A. Stocker Machinery Co., 566-72 W. Randolph St., Chicago**  
Second-Hand Machinery for Immediate Delivery

#### TURRET LATHES.

24" Garvin turret boring lathe, back geared.  
24" Niles, friction head.

18" W. A. Foster, ring turret.  
Warner & Swasey No. 2, hol. hex.  
20x8 Fay & Scott, friction head.

#### ENGINE LATHES.

14"x 6' Prentice, c. r.  
14"x 6' Fairbanks, c. r. and taper.  
14"x 8' Hamilton style "B."  
15"x 8' Von Wyck, c. r.  
16"x 6' Prentice, c. r.  
16"x 6' Sebastian, c. r.  
16"x 8' Monarch, c. r.  
16"x 8' Lodge & S., 3-step cone.  
16"x 8' Lodge & Shipley, pat. head.  
16"x10' Greaves & Klusman, c. r.  
18"x 6' Bradford, with taper.  
18"x 8' Bradford, with taper.

18"x12' American, qk. change gear.  
20"x10' Schumacher & B., with taper.  
20"x20' Pond, c. r.  
21"x10' Bradford, c. r.  
24"x13' New Haven, c. r.  
24"-40"x12' McCabe, double spindle.  
25"x16' New Haven.  
36"x16' Walcott.  
36"x16' Hamilton, triple geared.  
42"x24' Fifield, triple geared.  
48"x18' Schumacher & Boye, triple geared.

#### SCREW MACHINES.

Brown & Sharpe No. 0, wire feed.  
Pratt & W. No. 1, with inverted tur.  
Pratt & Whitney No. 3, plain head.  
Pratt & Whitney No. 2, friction hd.  
3" Hartford automatic stud, (4).

1" Cleveland automatic.  
1" Cleveland auto. turret former.  
1 3-16" Hartford automatic.  
20" Cleveland automatic, chucking.  
Foster Nos. 4 and 5, fric. hd., new, (25)

#### BORING MILLS.

52" Niles, car wheel.  
42" Colburn vertical, two heads and boring head.

60" Colburn, vertical, 2 heads.  
42" Bullard, one swivel and one turret head.

#### PLANERS.

Morton portable.  
17"x17"x12' Whitcomb crank planer.  
24"x24"x4' New Haven, one head.  
24"x24"x6' Gray, one head.  
24"x24"x6' Pond, one head.  
24"x24"x6' Pratt & W., one head.  
26"x26"x6' Pond, one head.

27"x27"x7' Wheeler, one head.  
36"x36"x8' Gleason, oar head.  
39"x33"x14' Cincinnati, four heads.  
40"x38"x14' Putnam, one head.  
42"x42"x12' New Haven, one head.  
42"x42"x14' D. & H., open side.  
44"x44"x12' Pond, two heads.

#### GRINDERS.

Landis No. 1 universal, (2).  
Rivett No. 5, internal.  
Saxon, cylinder.

Besly No. 7, double disc.  
20" Ransom, disc.

#### MILLING MACHINES.

Stephens No. 0, hand, new.  
Garvin No. 1 1/2 universal.  
Kemp Smith No. 1 1/2 universal.  
Cincinnati No. 3 universal.

Becker No. 7 Lincoln.  
Cincinnati No. 3 plain, with attachs.  
Garvin No. 15 plain.  
Brown & Sharpe No. 14 plain.

#### COLD SAWS.

Cochrane-Bly, 4" capacity.  
Franklin, 4 1/2" capacity.

Burr No. 3 complete.

#### SHAPERS.

16" Gould & Eberhardt, bk. grd.  
16" Niles, back geared.  
16" Rockford, back geared.

20" Cincinnati, back geared.  
24" American, back geared.

#### HAMMERS.

30 lb. Bradley, upright strap.  
100 lb. American, steam post.  
100 lb. Bradley, upright strap.  
100 lb. Pittsburg, single frame, steam.

400 lb. Bliss, board drop.  
800 lb. Morgan, single frame, steam.  
850 lb. Bell, single frame, steam.

#### PRESSES.

Ferracute No. 3, style P.  
R. & K. No. 2C horn press.  
Consolidated No. 21 horn press.  
Consolidated No. 2, open back.  
McDonald No. 430, double crank.  
Bliss, Nos. 18, 19 and 20, open back.  
Toledo No. 3, open back.

Bliss No. 96, double crank.  
Perkins No. 40, open back.  
Ferracute No. 133, double action.  
Cleveland, straight sided, geared.  
Williams & W. No. 14 1/2, single end.  
Long & Allstatter No. 5, single end.

## SECOND-HAND MACHINERY

### FOR SALE BY

Industrial Works	Bay City, Mich.
Axle lathe, Niles-Bement, one turning head, only.	\$ 150.
Cinder mill, Central Iron Works No. 3, complete with water centrifugal pump and friction clutch pulley; 32"x54" inside drum, 1" steel shell; purchased 1900.	250.
Lathe, 86"x36" Putnam, 20' center to center; cost \$7,000; sell for.	1,800.
Radial drill, 34" Betts, 2' clearance under spindle to top of table; suitable for light drilling.	50.
Shaper, 50" Niles-Bement, with traveling head, 14" horizontal adjustment, 14" stroke; recently overhauled and repaired	250.

### FOR SALE BY

Clark Machinery Co.,	717 Frankfort Ave. N. W., Cleveland, O.
Blower, No. 1 Root.	Keyseater, No. 2 Davis.
Bolt cutter, 2" Acme.	Keyseater, No. 6 Mitts & Merrill.
Boring mill, horizontal, Barrett.	Lathes, Bridgeport auto. thrdg., (4).
Drill press, 36" New Haven, sld'g hd.	Lathe, 12"x5" Reed.
Drills, 1 spindle, 1" Prentice, (8).	Lathe, 14x6 Prentice Bros.
Drills, 24" Bickford hvy. duty (8).	Lathe, 18"x8" Blaisdell.
Gear cutter, No. 13 Brown & S.	Lathe, 18"x8" Forsyth.
Grinder, disc, No. 8 Besly.	Lathe, 19"x10" Johnson.
Grinder, disc, No. 10 Besly.	Lathe, 21"x12" Blaisdell.
Grinder, universal, Greenfield.	Lathe, 21"x12" Lodge & Davis.
Grinder, 6 spindle automatic cock.	Lathe, 32"x17" Bullard.
Grinder, planer type, surf. 24"x4'.	Lathe, 38x16 Fifield, triple geared.
Hammers, helve, 25 & 40 lb. Bradley.	Miller, No. 12 Brown & Sharpe.
Hammer, board drop, 400 lbs.	Punch, No. 11 Badger combination.
Hammer, board drop, 500 lbs.	Turret lathe, 30" P. & W.

### FOR SALE BY

Brown-McDonald Machinery Co.,	906-908-910 North Market Street, St. Louis, Mo.
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#### LATHES.

9"x25" Barnes, foot and belt.	14"x8" Fitchburg, s. s., p. r.
10"x4" Young, hollow spindle, compound rest, foot and belt.	14"x8" Monarch, h. s., comp. rest.
11"x60" Barnes, foot and belt.	15"x8" South Bend, new.
12"x5" Prentice, h. s., r. & f. rest.	16"x5" Powell, h. s., p. r.
14"x5" Putnam, s. s., p. r.	16"x6" Hamilton, h. s., p. & f. rest.
	17"x8" Fifield, h. s., p. r.

#### DRILLING MACHINES.

12" Acme, 15 spdl., 1/4" capacity.	20" Superior, w. & l.
No. 4 Allen, 1 spdl., 1/4" capacity.	24" Bickford, sliding head, w. & l.
Reed, 3 spindle, 1/4" capacity.	24" Barnes, b. g., p. f.
20" Lodge & Davis, w. & l.	26" Aurora, b. g., p. g. f.
20" Champion, w. & l.	

#### SHAPERS.

14" Steptoe	16" Ohio.
16" Steptoe.	

#### PLANERS.

24"x24"x6" Lodge & Davis, s. h.	28"x26"x7" Whitcomb.
24"x24"x6" Powell.	30"x30"x9" New Haven.

#### PRESSES.

No. 33 Swaine, inclinable.	No. 70 Bliss drawing press.
No. 53 Swaine, gap.	American Can Co., foot, (3).

#### MISCELLANEOUS.

Cold saws, 1 Burr, 1 Newton.	Milling and boring, slab, Cincinnati.
Friction saw, Ryerson, motor drive.	Punch and shear, No. 2 Canedy-Otto, hand.
Gear cutter, No. 11 Dwight-Slate.	Shear, 8' No. 4 Bertsch, 16 ga.
Milling machine, No. 3 Brainard.	Seamers, Beaders, and sheet metal machinery; motors, etc. Write for Stock List No. 102.
Large stock of Rolls, Shears, Folders,	

## SECOND-HAND MACHINERY

### FOR SALE BY

**Rumely-Wachs Machinery Co., 121 N. Jefferson St., Chicago, Ill.**

If you have any machinery to sell or trade, consult us. The following is only part of our present stock. Does not show any new machines, and we continually have many cars on the way to us.

#### ENGINE LATHES.

11"x5' Seneca Falls, pan bed.	25"x12' Reed.
14"x6' LeBlond, standard.	30"x22' American.

#### SPEED LATHES.

11"x5' Blount.	14"x6' Grabo.
11"x6' Diamond.	16"x6' Blaisdell.
12"x6' Wachs.	16"x6' Robbins.

#### TURRET LATHES AND SCREW MACHINES.

11"x4' No. 107 Wells, turret.	15" American, Fox.
12" Meriden.	1" Wells, automatic.

#### DRILLS—MISCELLANEOUS.

20" Silver, s. b., l. feed.	4-spindle Gardam No. 1, adjustable taper.
20" Prentice, s. b., w. & l.	2-spindle 14" Rockford, hand and power.
20" Barnes, s. b., w. & l.	3-spindle Reed sensitive.
23" Barnes, s. b., w. & l. & pr.	3-spindle 20" Barnes.
23" Barnes, s. h., complete.	4' Fosdick plain radial, g. b. drive.
26" Barnes, s. h., complete.	5' Prentice plain radial, cone drive.
28" Sibley & Ware, s. h., complete.	3' Dreses plain radial, cone drive.
28" Barnes, s. h., complete.	No. 1 Barnes horizontal.
31" Barnes, s. h., complete.	
2-spindle Dwight-Slate sensitive.	
1-spindle Henry & Wright hi-speed.	

#### SHAPERS.

14" Hughes & P., crank snagging.	20" Steptoe, crank.
14" Lodge & Davis, crank.	26" Walcott, shifting belt.
15" Hendey, tool room.	

#### PLANERS.

22"x22"x5' Wheeler.	30"x30"x10' Gray.
24"x24"x6' Hamilton.	36"x36"x8' Geneva.
30"x30"x8' Gray.	36"x35"x15' Woodward & P., 2 hds.

#### MILLING MACHINES.

Pra't & Whitney No. 1, hand.	Kempsmith No. 1, plain.
Brown & Sharpe No. 1, plain.	Brown & Sharpe No. 3 plain.

#### PRESSES.

McDonald No. 1.	Wold No. 12.
Wold No. 1.	Bliss No. 18.
Rockford No. 2.	Crosby No. 19.
American Can No. 4.	Crosby No. 40.
American Can No. 4½.	Stiles No. 3.
Walsh No. 4.	Bliss No. 69-N, double acting.
Wold No. 5.	Adriance No. 12-A, double acting.

#### MISCELLANEOUS.

Axle lathe, Niles, double end.	Gear cutter, 40x9 No. 11.
Bolt cutters, 1½, 2½, 3½" Acme, single head.	Grinder, No. 26 Besly, 18", double spindle, with ring wheel chucks.
Boring machine, horiz., No. 3 Niles.	Grinder, disc, 18" Besly.
Boring and turning mill, 6-8' Betts.	Keyseater, No. 1 Mitts & Merrill.
Cylinder boring and turning machine, No. 5 Barrett.	Keyseater, No. 2 Mitts & Merrill.
Gear cutter, 40x9 G. & E. auto.	Keyseater, No. 3 Mitts & Merrill.
Gear cutters, Brown & Sharpe No. 11, spur, (3).	Keyseater, No. 5 Mitts & Merrill.
Gear cutters, Brown & Sharpe No. 11, bevel, (3)	Keyseater, No. 3 Baker, with compound circular table.
	Punch, 24" throat, 4x1½" Cleveland.
	Punch, 19" throat, 1x1½" Kling.

## SECOND-HAND MACHINERY

### FOS SALE BY

**The Bicknell Mfg. & Supply Co., - - - Janesville, Wis.**

#### LATHES.

18"x8' hollow spindle, comp. rest. | 24"x16' hollow spindle, comp. rest.  
24"x8' hollow spindle, comp. rest. | 36"x18' compound rest.

#### MISCELLANEOUS.

Boring machine, horizontal. | Punch and shear, double end.  
Electric field winder. | Screw machine, 15-16".  
Miller, Lincoln. | Tapping machine.  
Various other machines; face plates, angle plates, compound rests, steady rests; lathe parts to order. All kinds of machinery wanted. Correspondence solicited from buyer and seller.

### FOR SALE BY

**Badger-Packard Mchy. Co., 72-74-76 W. Water St., Milwaukee, Wis.**

#### DRILLING MACHINES.

10" Hoefler, sensitive. | 26" Hoefler, sliding head.  
11" Barnes, geared. | 26" Mechanics, sliding head.  
24" Mechanics, sliding head. | 30" Bickford, sliding head.

#### LATHES.

12"x6' Davis, r. and f. rest. | 18"x8' Blaisdell, compound rest.  
14"x6' Wood & Light, r. and f. rest. | 30"x14', comp. rest, countershaft.  
14"x6' Lodge & Davis, plain rest. | 38"x20' New Haven, comp. rest.  
18"x8' McCabe, compound rest.

#### PLANERS.

20"x20"x4' New Haven. | 30"x30"x8' Steptoe-McFarlane.  
24"x24"x6' Lathe & Morse.

#### PUNCH PRESSES.

No. 2 Consolidated, o. b., inc., (4). | No. 3 Michigan, o. b., inc.  
No. 2C Consolidated, o. b., inc.

### FOR SALE BY

**Chas. Molitor Machinery Co., 215-221 S. Clinton St., Chicago, Ill.**

#### LATHES.

12"x6' Hendey, taper, dr. collets. | 20"x10'6" Lodge & Davis.  
14"x6'4" Lodge & Davis. | 20"x12' Lodge & Davis.  
14"x8' American. | 24"x12' Lodge & Davis.  
15"x6' Flather, qk. chg., taper. | 24"x12' Putnam.  
15"x6' Von Wyck. | 32"x10' Gleason.  
18"x8' Bradford. | 32"x14' Putnam.  
18"x10'3" Lodge & Davis. | 52"x16'4" New Haven.

#### SHAPERS.

12" Pedrich-Ayer, traverse. | 16" Rockford.  
14" Steptoe. | 20" Gould & Eberhardt.  
16" Steptoe. | 26" Walker.

#### MILLERS.

No. 1 Brainard. | No. 2 Garvin, Lincoln type.  
No. 3 plain Garvin. | F. E. Reed, Lincoln type.

#### TURRET LATHES AND SCREW MACHINES.

15" Lodge & Davis Fox turret. | 1" capacity Garvin screw machine.  
16" Pearson turret, geared.

#### PLANERS.

18"x6' Whitcomb. | 30"x7' Whitcomb.  
20"x6' Wheeler. | 30"x8' Fitchburg.

#### MISCELLANEOUS.

Arch press, 48". | Drill, univ., 31" Gould & Eberhardt.  
Boring machine, horizontal, 12"x18". | Punch, heavy, 21" throat.  
Boring mill, car, 50". | Slotter, Putnam Machine Co.  
Drill, universal, 36" Grand. | 6'-10' Brakes, rollers, air compressors.

100 other brass, iron, tinnerns' and wood-working machines.



## SECOND-HAND MACHINERY

### FOR SALE BY

**Wayne Machinery Co., Taylor St. & L. E. R. R., Fort Wayne, Ind.**

Drill, 3-spindle No. 35-A Henry & Wright, hollow spindle.  
Drill press, 20" Barnes, w. & l. f.  
Drill, 4-sp., Fox Machine Co.  
Gear cutter, 36" Brainard auto.  
Grinder, double disc, No. 10 Besly.  
Grinder, emery & surf. No. 1 LaSalle.  
Grinder, drill & emery, W. & M.  
Grinder, plain roll, 8x26" Diamond.  
Grinder, wet tool, 12" Cady.

Lathe, speed, 10"x4' Reed.  
Lathe, speed, 14"x3', J. A. Fay.  
Lathe, 24"x12', turret on shears.  
Milling mch., plain, No. 4 Garvin.  
Milling machine, plain, No. 5 Brainard.  
Planer, 36x36x8 Powell.  
Tire welder, No. 4 L. & A.  
Welding machine, No. 6-A Toledo electric butt welder.

### FOR SALE BY

**Springfield Machine Tool Co., 823 E. Adams St., Springfield, Ill.**

Electric motor, 2 h. p. Sprague, 220 volt, d. c.  
Electric motor, 5 h. p. Standard, 220 volt, d. c.  
Electric motor, 7½ h. p. Sprague, 220 volt, d. c.  
Electric motor, 2 h. p. Westinghouse, 220 volt, 3 phase.  
Folder, 20" Niagara.  
Lathe, precision bench, 7"x36" Pratt & Whitney, and equipment.  
Lathe, 18"x6' L. D., Imperial pat.  
Lathe, 18"x8' L. D., Imperial pat.

Lathe, 32"x10' Fay & Scott.  
Milling machine, plain, 36"x8" table, 24" power transverse feed.  
Nailing machine, 6-nail, for wooden boxes.  
Planer, 24"x24"x6' L. D.  
Press, pwr., No. 19 Bliss inclinable.  
Press, power, No. 44 Ferracute inc.  
Shaper, crank, 16" Steptoe.  
Shears, square, 37" Niagara.  
Turret lathe, 12"x4'.  
Turret lathe, 12"x4' W. & S., 6-hole automatic turret, 1½" hole.

### FOR SALE BY

**Wm. C. Johnson & Sons Machinery Co.,  
210-212 Washington Ave., St. Louis, Mo.**

#### LATHES.

14"x12' Lodge & Davis.  
18"x 6' F. E. Reed.  
18"x 8' J. B. Reed.  
20"x10' Steptoe.  
22"x8' Harrington, gap.

28"x12' Fay & Scott.  
30"x20' New Haven.  
38"x16' Fifield.  
42"x20' Bradford.

#### SHAPERS AND PLANERS.

20" Hendey.  
24" Hendey.  
48" Walcott.

24"x34"x 6' Cincinnati planer.  
48"x48"x12' New Haven planer.

#### AIR COMPRESSORS.

8x8 belted.  
9x9 steam driven.  
10x10 steam driven.

500 cu. ft. capacity, belted.  
500 to 1,000 cu. ft., steam driven.  
1700' steam driven.

#### MOTORS.

15 h. p., 220 volt, d. c.  
15 h. p., 220 volt, 3-phase, 60 cycle.

17½ h. p., 220 volt, 3-phase, 60 cycle.  
100 h. p., 3-phase, 60 cycle, 440 volt.

#### MISCELLANEOUS.

Air hammers, lot of.  
Angle shear, dbl., L. & A., size B.  
Bolt cutter, 1½" double head.  
Bolt cutter, 2" Schlencker.  
Brake, No. 14 Dreis & Krump, 10'.  
Cold saw, No. 4 Cochrane-Bly.  
Grinder, universal, Cincinnati.  
Hammer, steam, 350 lb.  
Hammer, steam, 600 lb.

Hammer, Yeakley, 80 lb.  
Jack, hydraulic, 50 ton.  
Jacks, Simplex, 12 and 15-ton.  
Keyseater, No. 0 Baker Bros.  
Punch press, heavy, dbl. housing.  
Punch and shear, 48" throat.  
Rivet machine, continuous, 1".  
Wood trimmer, Oliver No. 3.  
Wood lathes, (3).

## SECOND-HAND MACHINERY

### FOR SALE BY

**Gisholt Machine Co., 1500 E. Washington Ave., Madison, Wis.**

For immediate delivery, subject to prior sales, f. o. b. Madison, Wis.

#### LATHES.

- 1-28" (4" spindle bore) Milwaukee turret lathe, 5 horse power, variable speed, 220 volt, direct current, motor drive.
- 1-30"x12' Pond engine lathe, 4 horse power, variable speed, 220 volt, d. c., motor drive control from tool carriage.
- 1-27"x10' Blaisdell engine lathe, 4 horse power, variable speed, 220 volt, d.c., motor drive control from tool carriage.
- 1-60"x14' Fifeild engine lathe, 10 horse power, variable speed, 220 volt, d.c., motor drive control from tool carriage.

These machines were being used almost daily in a plant we recently purchased here in Madison, and are not required for our work. All are in good running condition.

### FOR SALE BY

**The Osborne & Sexton Machinery Co., Columbus, Ohio.**

#### LATHES.

- 13"x 5' Reed, hollow spindle.
- 14"x 6' American, s. c. taper.
- 14"x 8' thoroughly rebuilt.
- 18"x 8' South Bend, new, (2).
- 18"x 8' Schumacher & Boye.
- 13-18" Hamilton, new.
- 20"x8' Prentice, h. s., c. r., taper.
- 21"x8' Beaman-Smith, h. s., c. r.
- 32"x16' Niles, compound rest.
- 28"-48"x15' centers, Harrington.

#### SHAPERS AND PLANERS.

- 14" Hendey.
- 30" Morton, draw cut.
- 32x32x6' and 8' both Grays.
- 30x30x12' Pond, single head.

#### DRILLING MACHINES.

- 20, 22, 24 and 30".
- Baker heavy duty, (2).
- 30" radial, plain, (2).

#### MISCELLANEOUS.

- Broaching machine, 64" Waterbury.
- Cold saw, Lucas, 8" capacity.
- Hammers, helve, Bradley, 60 lb.
- Hammers, fric. bd., 400, 750 & 3,000 lbs.
- Lathe, 18" American Fox.
- Miller, universal, No. 1 Garvin.
- Press, No. 3 Loshbaugh-Jordan.
- Press, o. b., No. 3 Crosby.
- Rolls, shovel blanking, Toledo.
- Screw machine, 12" Pratt & Whitney.

### FOR SALE BY

**Frank Toomey, Inc., 127-131 N. Third St., Philadelphia, Pa.**

#### LATHES.

- 48"x30' Niles, blocked to 58".
- 60"x12' Putnam, s. s., c. r., p. f.
- Conradson turret lathe, heavy, 34" hollow spindle, 40" swing.

#### PLANERS.

- 54"x48"x8' Sellers.
- 48"x48"x15' Sellers.
- 30"x30"x12' Bement type.
- 30"x30"x8' Whitcomb.
- 24x24"x6' Flather.
- 22"x22"x6' Powell.

#### SHAPERS.

- 24" Flather.
- 14", 16" and 18" shapers.

#### RADIAL DRILLS.

- 72" Baush.
- 48" Dresses.
- 42" Betts.
- 30" Alfred Box.

#### MISCELLANEOUS.

- Grinder, 10"x30" Landis.
- Hammer, steam, 350 lb. Bement, single frame.
- Miller, vertical, Beaman-Smith.
- Pipe machines, 3" and 6" Curtis & Curtis, hand power, (2).
- Presses, combined horning and wiring, No. 22 Adriance, (2).
- Press, PG-3 Ferracut.
- Pulley boring machine, 60" Harrington, upright.
- P. & G. lathes, 22"x6', 2 3-16" h. s.
- Turret lathes, 13" Gisholt, (2).
- Turrets, semi-auto., Cleveland, (4).
- Turret, ring, 24" wire feed, Foster.
- Turret, 16"x6' Johnson, b. g.
- Turret, ring, 14"x5' Lodge & Shipley.

## SECOND-HAND MACHINERY

### FOR SALE BY

**New York Machinery Exchange, 50 Church St., New York, N. Y.**

#### AUTOMATIC SCREW MACHINES.

Acme 4-spindle,  $\frac{1}{2}$ " capacity.  
Acme 4-spindle,  $\frac{1}{2}$ " capacity.  
Hartford,  $\frac{3}{4}$ " capacity.  
Cleveland,  $2\frac{1}{2}$ " capacity, (4).

Cleveland, 1" capacity, (4).  
Cleveland,  $\frac{3}{4}$ " capacity, (2).  
Hartford,  $\frac{1}{2}$ " capacity, (2).

#### TURRET LATHES.

3"x36" Jones & Lamson, (3).  
2"x24" Jones & Lamson, (6).  
41" Gisholt.  
24" Gisholt.

21" Gisholt.  
18" Gisholt.  
40" Bullard.  
32" Bridgeport.

#### RADIAL DRILLS.

6' Bickford, universal.  
5' Bickford, plain.  
4' Niles, universal.

4' Prentice, plain.  
3' Prentice, plain.

#### ENGINE LATHES.

54"x21'6" face plate drive.  
48"x16" face plate drive.  
36"x15' comp. rest, pwr. cross feed.  
36"x14' comp. rest, pwr. cross feed.  
26"x12' comp. rest, pwr. cross feed.

34"x16' comp. rest, pwr. cross feed.  
32"x16' cp. rest, pwr. cross feed, (3).  
36"x20' comp. rest, pwr. cross feed.  
Fifty other sizes, down to 12" swing.

#### MILLING MACHINES.

No. 5 Brown & Sharpe vertical miller.  
No. 3 LeBlond full universal.  
No. 2 Brown & Sharpe plain.

No. 2 Cincinnati plain, (2).  
No. 4 Garvin plain.  
No. 1 Brainard plain.  
No. 13 Garvin plain, (3).

#### GRINDERS.

3' Pratt & Whitney, surface.

In replacing our manufacturing equipment we find the following first-class

## Used Machine Tools

which we offer at attractive prices

#### MISCELLANEOUS

No. 454—LeBlond sens. drill.  
No. 1379—Universal swivel table for radial drill.  
No. B —36"x36"x12" Niles single head planer.  
No. 683—Mueller grindstone and frame.  
No. 661—Globe tool sharpener for  $\frac{1}{2}$ "x6" wheels.  
No. 690—Marion buffing mche.  
No. 1401—Gleason mitre gear tester.  
No. 1690—Rockford Drilling Co.'s straightening machine.  
No. 515—Oliver No. 3 wood trimmer on pedestal.  
No. 1607—Bowscher bal. ways.

No. 1363—E. H. Mumford split pattern molding machine.  
No. 1105—No. 3 power arbor press.  
No. 1236—No. 00 Monogram Sturtevant blower.  
No. 2531—Sturtevant blower.  
No. A-2033—Laidlaw-Dunn-Gordon duplex feed pump.  
No. C —Niles 25"x16' 4-step Cone Head Sgl. bk. grd. lathe.  
No. 1349—Covel Mfg. Co. saw sharpener.  
LeBlond Sensitive Drill Univ. swivel table for radial drill.  
Heald No. 210 Surface Grinder.  
15 h. p. Gas Engine, 215 r.p.m.

**The Lodge & Shipley Machine Tool Co.**  
Cincinnati, Ohio, U. S. A.



## \$14 "EMCO"

### Bench Drill No. 1

### From Your Dealer

or direct from us.  
Ball Bearing Thrust  
3/4" capacity, adjust-  
able lower bearing  
and stop. Steel rack  
and pinion. Strong,  
rigid, guaranteed.

No expense is spared to produce in this  
press a high grade tool at a moderate cost.

Air compressor, Curtis, 8"x8", 2 cyl., (new \$300), .....	\$ 120.
Air comp., belt, vrt. 10x12 Curtis Band saw, 26", tilting table, .....	300.
Band saw, 27", tilting table, 2 saws, brazing outfit, .....	55.
Band saw, 36" Jones Superior, Band saw, Pratt & W., 30", b. g., metal, (new \$375), .....	75.
Belt lacing mch., 4" \$25; 8" .....	200.
Blower, Garden City No. 0 (new \$41), .....	65.
Blower, Connersville No. 6, Bolt cutter, 2" Putnam, sol. dies Bolt cutter, 2-sp. Capital No. 3, Bolt cutter, Adams, 2 sp., 1/2" cap Bolt threader, 2" Landis, g. d., Boring mill, hor., 48"x12" .....	20.
Boring mill, hor., 48"x12" .....	28.
Boring mill, hor., Bement, 60" .....	75.
Boring mill, hor., 61"x18" .....	110.
Boring mill, 72" Niles, 2 univer- sals heads, (new \$5000), .....	225.
Bottle cap filler, auto. (new \$400) .....	750.
Brake, 40", never used, .....	600.
Brake, 6', 18" ga., Robinson, (new \$135), .....	950.
Brake, 10' D. & K., power., 3-16" capacity, (new \$1000), .....	700.
Brake, cornice, 8' Keene 16 ga., Cutter for 1 bms, 12", Pels, hand Drill, universal radial, 6' N-B- P., motor, (new \$1800), .....	2200.
Drill, sensitive, s. h. and table, .....	200.
	30.
	150.
	1350.
	28.

### Immediate Delivery



## \$2200

72"x48" Niles  
B. C. Vert. Boring  
Mill, 2 Univ.  
adj. hds., friction  
feed, cross rail,  
55" round table,  
raised by power,  
countershaft,  
good condition.

Drill, 20" b. g., tap at., p. f., k. o. \$ 85.	
Drill, 20" p. f., .....	49.
Drill, 25" Fitchburg, b. g., p. f., .....	125.
Drill, 26", pl. hd., w. & l. feed, .....	85.
Drill, 28" Barnes, b. g., p. f., .....	125.
Drill, 32" Barnes, p. f., b. g., .....	175.
Drill, H. & W., high sp., b. b., .....	88.
Drill, 3 sp. sensitive, 3 speed, .....	70.
Drill, 9-sp. in row, adj. pump, .....	375.
Drill, 12-sp. Gardner, var. spd., square slotted table, heavy, (new \$2000), .....	1200.
Drill, Baker, cap. 24" in steel, .....	345.
Enameling oven, 8'x8'x7' with burners, (new \$275) .....	175.
Engine, 15 h.p. Atlas, str., (\$250) .....	175.
Engine, Ideal, auto., 75 h. p., .....	375.
Engine, Porter auto., 60 h. p., .....	300.
Engine, Vilter-Corliss, 80 h. p., .....	575.
Engine, gas, 7 h. p. Buckeye, .....	125.
Engine, gasoline 20 h. p., White & M., (new \$600) .....	290.
Engine, gas, Otto, 30 h. p. (\$1300) .....	800.
Engine, gas, oil, 40 h. p. Olds, new .....	950.
Engine, gas, 50 h. p. Westghs., .....	375.
Facing lathe, 36" swing, .....	200.
Flange stg. mch. dup., grd. hd. Generator, 220 v., d. c., dir. con. 50 h. p. gas engine, switch bd., comp., fine cond. (new \$3600) .....	275.
Grinder, heavy, 1 1/2 sp., c. s., .....	2500.
	23.

## THE ENTERPRISE PHONE MAIN 1295

Grinder, cock, dbl. end, .....	\$ 28.
Grinder, disc, 18" Besly No. 10, .....	235.
Grinder, disc & cup, 24" travel .....	75.
Grinder, disc, Norton, 18" press .....	80.
Grinder, surface, W. & R. cup & plain wheels, (new \$250) .....	175.
Grinder, hvy. disc, 24" Gardner No. 6, universal head, glue press, (new \$500) .....	300.
Grinder, drill, .....	20.
Hammer, W. & W., strap, drop, 125 lb., .....	100.
Hammer, Toledo, 5000 lb. board drop, weight 8000 lb., never used, immediate delivery, (new \$6000) .....	3500.
Hoist, chain, Franklin, 1 1/2 tons, Joint facing mch., cap 3"x24", with pump, double end, .....	30.
Keyseater, Davis No. 1, c. s., .....	310.
Lathe, spinning, 10" .....	140.
Lathe, spinning, 20" .....	27.
Lathe, spinning, 22" .....	75.
Lathe, spinning, gap 34"-60" x 7', not used, (new 350) .....	75.
Lathe, bench, 3 collets, c. s., .....	255.
Lathe, 8"x3", Barnes, foot pwr. .....	75.
Lathe, 11"x4", Sebas., c. r., 3" h. s., .....	68.
Lathe, 18"x8" Star Tool, c. r., p. c. f., 1 1/2" h. s., 2 cabinet legs, chuck, heavy rebuilt, .....	125.
	450.

If you don't find what you want write us.

Lathe, 14"x6' Bogart, c.r., h.s.,	\$190.
Lathe, 22"x12' c. r., s. r., ck....	300.
Lathe, 13"x6' Champion, c. r.,	
p. c. f., 1 1/2" h. s., s. r., ck....	290.
Lathe, 30"x14', Fifield, c. r., p.	
c. f., b.g., chuck, face plate...	500.
Lathe, auto thread, 6" (#1650)...	475.
Lathe, turret, J. & L. friction	
feed, 6 stops, collets 3/8 to 2 1/2"	
threader, cutoff, etc.....	1300.
Mill, boring, 72" Niles. 2 univ-	
ersal heads, (new \$5000).....	2200.
Miller, 7"x20" Grant, eccen. hd.,	95.
Motor, 10 h.p., Cr. W., 220 d.c.,	
825 r. p. m., guaranteed.....	160.
Miller, univ., No. 2 Cin., div. hd.	1100.
Motor, 3 h.p., 2 pole, W. E. 110 v.	45.
Oil separator, new, 100 lb. cap.,	110.
Oven, annealing, 20"x30"x9"...	85.
Paper baler, Famous, cap. 100 lb.	45.
Paper pr., 15x20x18 Little Giant	75.
Pipe bender, 2", motor.....	600.
Pipe coiler, 6"-10" cap., motor,	950.
Pipe cut-off, 4" cap., power....	75.
Pipe threader, 2" Jarecki.....	85.
Pipe threader, 4" power.....	85.
Pipe threader, 4" power, grd.,	400.
Pipe threader, 6" Bignall & K.,	
worm and gear, (new #825).....	625.
Pipe threader, 1/2" to 4" Merrill,	
self opg. dies, like new, pump,	275.

## MACHINERY CO.

523 MONROE ST., CHICAGO

Pipe threader, 12" Bignall & K.	
adj. head, tap. head, cut-off,	
(new #1800).....	\$1050.
Planer, 32"x9' New Haven, 1 hd.	500.
Planer, 36"x16' Sellers, 1 hd....	700.
Planer, 42"x15', 2 heads.....	875.
Press, hyd., 100-ton (new #575)	200.
Press, hyd., 300 ton, 18' hor....	750.
Press, foot, 14" thrt., dbl. acting.	
Press, dbl. act. No. 102 Ferracute	220.
Punch, 1/2" angle shear, 2 1/2-3"	
rod cutter, 1" hand.....	60.
Punch, (3/4") rod 1", angle, flat	
cutter, 2700 lb. New Doty, hd.	60.
Punch, Long & A., single end	250.
Punch, 1" in 1", 36" throat.....	900.
Punch, 1 1/2" in 1", 36" throat....	1075.
Punch, d. b. g., 15" thrt., 2x3"	85.
Punch & sh., hand, new, 1/2-3"x5	75.
Punch & shear, W. & W. No. 7,	
double end, cap. 1/2" in 1/2".....	250.
Punch, shear and rod cutters,	
new, guar. 1/2" in 1/2", \$115; 1/2"	
\$125; 3/4", \$180; 1", \$215; 1 1/2"	290.
Rivet spinner, Grant, on ped.,	40.
Rolls, pwr, new, all sizes, 3-16x62	275.
Roll grinder, 16x40", roll (\$1000)	275.
Sand blast, Reliable, new,	
complete with container; no	
room need; send for descrip.	490.
Saw, cir., Jones Sup., tilt. & bev.	115.

**\$52**  
**"EMCO"**

**All Steel**  
**36" Square**  
**Shear**

**From Your**  
**Dealer**



or direct from us. Unbreakable in body  
or treadle, all made of wrought steel  
except crucible steel legs, guaranteed.

Saw, cold, Burke, 5" capacity	\$ 75.
Saw, hack, 24" blade, good cond.	28.
Saw, hack, Economy, new.....	30.
Saw, hi-spd, hack, Economy.....	75.
Screw machine, automatic, 1/2"	
LaVigne, 10 collets.....	290.
Screw press, 6", 150 lb. wts.....	50.
Set screw machine, (new #125)	75.
Shaft straightener, Springfield	20.
Shaper, 18" friction, vise.....	175.
Shear, alligator, new, 4"x1/2", 1"	
round #100; 6"x1", 2" round.	250.
Shear, pwr., 42", 1/2" cap., d.b.g.	295.
Shear, splitting, d.b.g., new, 1/2"	
cap. #150; 1/2" capacity.....	310.
Shear, sq. 22", #22; 30".....	29.
Shear, sq., steel, new, 5", #156; 8"	245.
Shear and splitter, circ., 24" thrt.,	
power, traveling bed, 20" chan-	
nels, 27"x9' carriage, motor....	800.
Slotter, pwr., sc. or lever feed,	16.
Surface pl., 42x60", #35; 24x36"	10.
Tapper, Garvin No. W, 28" swg.	150.
Tapping mch., 2-sp., 2" cap.,	
Acme, automatic stop.....	500.
Tube bender, 2", pwr. worm gr.,	350.
Welder, butt, Current, 1/2" cap.,	
with gear & equip., (new #375)	275.
Welder, spot, heavy, 26" throat,	250.
Wire crimper, S. & K. auto.,	
15 sets wheels, flat and round,	
like new.....	375.

**1100 lbs. \$1160**  
**1500 lbs. \$1520**

**New American**  
**Steam Hammers**

**Immediate Delivery**  
all features of newest  
design, automatic double  
acting, weight 22,000  
and 27,000 lbs.



**Our List is constantly changing.**

## PLANERS

76"x76"x14' Pond, 2 heads.  
72"x72"x34' Sellers, 4 heads.  
72"x72"x14' Bement-Miles, 4 heads.  
60"x60"x14' Sellers, 4 heads.  
56"x56"x16' Niles-Bement-P., 4 hds.  
56"x56"x12' Pond M. T. Co., 4 hds.  
48"x38"x10' New Haven, 1 head.  
41"x36"x8' New Haven, 1 head.  
38"x38"x12' Pond, 1 head.  
38"x36"x20' Pond, 3 heads.  
36"x36"x12' Sellers, 3 heads.  
36"x36"x10' G. A. Gray Co., 2 heads.  
36"x36"x8' Sellers, 4 heads.  
36"x36"x8' Pond, 2 heads.  
36"x36"x8' Pond, 1 head.  
32"x32"x8' Pond, 2 heads.  
30"x30"x10' Chandler, 2 heads.  
30"x30"x8' Woodward & P., 2 hds.  
30"x30"x8' American, 1 head.  
30"x30"x6' G. A. Gray Co.'s, 1 head.  
28"x28"x8' Pond, 1 head.  
26"x26"x8' Pond, 1 head.

## TURRET LATHES

Two Potter & Johnston automatic chucking and turning lathes, 20" swing, 2" hollow spindle.  
One Potter & Johnston automatic chucking and turning lathe, capacity 14"x14" hol. spin. 4 1/2" hole.  
Gisholt, 21" swing, 3 1/2" hollow spin.  
Garvin No. 13 with 1 15-16" wire fd.  
King turret lathe, 24" hole for 24" stock by 23" in length.

## LATHES

56"x16' bed, Putnam.  
52"x28' bed, Fitchburg.  
50"x28' bed, New Haven.  
48"x16' bed, Pond.  
42" dbl. hd. car-wheel lathe, Niles.  
40"x10' bed, heavy.  
38"x13' Fitchburg.  
36"x16' bed, Putnam.  
36"x10' bed, Pond.  
30"x10' bed, Fifield.  
28-48"x14' bed, Harrington, sliding gap bed.  
26-44"x16' McCabe double spindle.  
28"x15' bed, New Haven.  
28"x14' bed, Fitchburg.  
22"x16' bed, Pond.  
20"x14' bed, Harrington.  
16"x8' bed, Prentice Bros.  
16"x8' bed, Greaves-Klusman, taper.  
Auto.thread'g lathe, threads 18" long.

## HOR. BORING MACHINES

40" bar, Niles.  
4" ba., Binsse.  
28" bar, Sellers.

## UPRIGHT BORING MILLS

10' swing, Pond, 2 heads.  
8' swing, Niles, 2 heads.  
7' swing, Niles, 2 heads.  
6 1/2' swing, Pond, 2 heads.  
76" swing, Betts, 2 heads.  
75" swing, Niles, 1 head.  
74" swing, Niles, 2 heads.  
72" swing, Pond, 2 heads.  
60" swing, Niles, 2 heads.  
54" swing, Colburn, 2 heads.  
56" swing, Niles, 2 heads.  
42" swing, Bullard, 2 heads.

## MILLING MACHINES

"Planer Type"

24" bet. housings, 8' table, Bement.  
24" bet. housings, 14' table, Bement.

## MILLING MACHINES

"Lincoln Style"

24 Lincoln type millers, table 27"x6"  
1 Lincoln Style Putnam, tbl. 36"x7'.

## MILLING MACHINES (Plain)

Large size table 60"x14".  
No. 2 Cincinnati, back geared.  
Vertical extra heavy Bement.

## SHAPERS

30" Draw stroke, Morton.  
24" Crank, Gould & Eberhardt.  
24" Friction, Hendey.  
20" Stroke, Walters.  
16" Stroke, Smith & Mills.  
14" Stroke, Prentiss.  
12" Stroke, dbl. trav. head, Sellers.  
12" Stroke, traversing hd., Sellers.

## NEW SHAPERS

Three 25" stroke new, Smith & Mills latest pattern, high-speed crank, back geared shapers, now ready for immediate shipment.

## RADIAL DRILLS

7' Arm, heavy, Hilles & Jones.  
6' Baush (Pond Style), heavy.  
5 1/2' Arm, Prentice Bros.  
5' Arm, Prentice Bros.  
4 1/2' Arm, Niles-Bement-Pond, full universal speed-box.  
4' Arm, Gang Co.'s speed-box.

## NEW RADIAL DRILLS

2 Gang Co.'s new improved style with speed-box.  
1 Gang Co.'s speedy belted sensitive type with tapping attachment.  
1 Gang Co.'s 3 1/2' arm, speed-box.

**J. J. McCabe, 30 Church St., New York**

# REMANUFACTURED MACHINERY

FOR QUICK SHIPMENT

## *Partial List of Largest Stock in the World*

### SHAPERS.

- 2-14" Steptoe.
- 3-15" Hendey.
- 1-15" Stockbridge.
- 3-15" Hendey.
- 1-15" Stockbridge.
- 1-16" Garvin.
- 1-16" Ohio.
- 3-16" Steptoe.
- 5-16" Flather.
- 1-17" Davis & Egan.
- 1-18" Barker & Chard.
- 2-20" Hendey.
- 1-20" Smith & Mills.
- 4-20" Gould & Eberhardt.
- 2-22" Walcott.
- 1-22" Ohio.
- 1-24" Barker.

### MILLING MACHINES.

- 1-No. 1 Garvin Hand.
- 1-No. 3 Pratt & Whitney Hand.
- 1-No. 00 Brown & Sharpe Hand.
- 1-No. 2 Fox Hand.
- 1-No. 34 Fox.
- 3-No. 3 Chicago Hand.
- 1-No. 4 Garvin.
- 1-No. 0 Brown & Sharpe.
- 1-No. 0 Owens.
- 1-No. 12 Brainard Universal.
- 1-No. 0 Cincinnati.
- 1-No. 25 Brainard.
- 2-No. 20 Oesterlein.
- 1-No. 2 Cincinnati.
- 2-No. 3 Becker-Brainard.
- 1-No. 2-B Brown & Sharpe.
- 1-No. 2-H Brown & Sharpe.
- 1-No. 2-V Brown & Sharpe.
- 1-No. 28 Oesterlein.
- 1-No. 3-A Owen Universal.
- 1-No. 34 Oesterlein.
- 3-No. 9 Kempsmith.
- 1-No. 23 Brown & Sharpe.
- 1-No. 2-A Kempsmith.
- 1-No. 3 Kempsmith.

### MILLING MACHINES—Cont'd.

- 2-No. 5 Kempsmith.
- 1-No. 24 Oesterlein Universal.

### HORIZONTAL BORING MILLS.

- 1-Flather.
- 1-No. 1 Niles.
- 1-Newark.
- 3-Bement.
- 2-Binsse.
- 1-Bement-Miles & Co.
- 1-No. 3 Sellers.
- 1-No. 2 Betts.

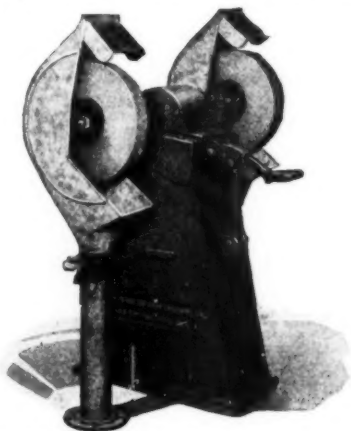
### PRESSES.

- 2-Screw Presses.
- 2-Foot Presses.
- 1-No. 0 Stiles.
- 1-No. 1 Consolidated.
- 1-No. 1 Swaine.
- 2-No. 2 Zeh & Hahnemann.
- 1-No. 31 Swaine.
- 1-No. 3 Falkenau and Sinclair.
- 1-No. 3 Stiles.
- 1-No. 19 Bliss.
- 1-No. 19-C Bliss.
- 1-No. 3 Rockford.
- 1-No. 3 American Can.
- 3-No. 3 Stiles.
- 1-No. 4 Consolidated.
- 1-No. 4 V. & O.
- 1-No. 5 American Can.
- 2-No. 5 Bliss.
- 1-No. 64 Consolidated.
- 1-No. 57 Adriance.
- 1-No. 34 Bliss.
- 1-No. 3 Rockford.
- 1-No. 21 Bliss.
- 1-No. A½ New Doty.
- 1-Colton Double End.
- 1-Cleveland Single End.
- 1-Perkins Single End.
- 1-Scully.
- 1-No. 4 Long & Allstatter.

*New Green List and Picture Book Now Ready*

**HILL, CLARKE & CO. OF CHICAGO**  
125 N. CANAL ST., CHICAGO, ILL.

**The "New Britain"**  
**Drop-Head Polishing Machine**



***180 Of These Machines***

—recently went into one firearms factory because of superior economy and efficiency only.

The belt pull from below—with the belt entirely enclosed and in tension only while running—saves in equipment and cost of upkeep, saves in power, prevents any possible belt contact with the work, insures nearly twice the life to the spindle and a steadier running wheel.

*Write for description of this economy-efficiency polisher*

**The New Britain Machine Co.**

**60 Chestnut St., New Britain, Conn.**



